



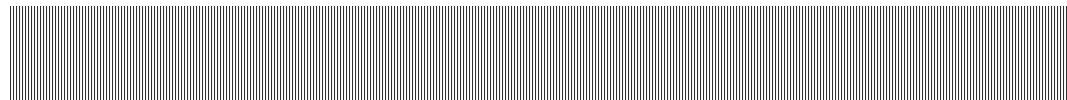
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Kansas City District**

Final Data Characterization Report for Phase 2 OU1 Soil and Interior Dust Sampling

**Operable Unit 01
Cornell- Dubilier Electronics
Superfund Site**

April 2012



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List of Acronyms and Abbreviations

RA	Remedial Activities
bgs	below ground surface
CDE	Cornell-Dubilier Electronics Corporation, Inc.
CLP	Contract Laboratory Program
FS	Feasibility Study
FSP	Field Sampling Plan
HEPA	High-Efficiency Particulate Air
ID	identification
Louis Berger	The Louis Berger Group, Inc.
Malcolm Pirnie	Malcolm Pirnie, Inc.
mg/kg	milligrams per kilogram
ND	non-detect
NJ	New Jersey
NJDEP	New Jersey Department of Environmental Protection
OU-1	Operable Unit 1
OU-2	Operable Unit 2
OU-3	Operable Unit 3
OU-4	Operable Unit 4
PCBs	Polychlorinated biphenyls
PID	Photoionization detector
ppm	parts per million
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
QC	Quality Control
QCP	Quality Control Plan
RA	Remedial Activities
RI	Remedial Investigation
ROD	Record of Decision
ROW	Right of Way
SOP	Standard Operating Procedure
SOW	Statement of Work
SSHP	Site Safety and Health Plan
TCL	Target Compound List
ug/kg	micrograms per kilogram
USACE	United States Army Corps of Engineers
USEPA	United States Environmental Protection Agency
Weston	Roy F. Weston, Inc.



Brief Rationale for Uncollected Soil and Interior Dust Samples

Soil samples were not collected from the following locations since they were identified for confirmatory interior dust sampling only:

- Property 110
- Property 112

Soil samples were not collected from the following properties based on observations made during USEPA and Louis Berger field reconnaissance:

- Property 202
- Property 228

Interior dust samples were not collected from the following property based on observations made during USEPA and Louis Berger field reconnaissance:

- Property 203

Neither interior dust nor soil samples were obtained from the following locations because property owners chose not to grant access:

- Property 207
- Property 208
- Property 215
- Property 221
- Property 222
- Property 224
- Property 225

Interior dust samples were not obtained from the following locations because property owners chose to grant access to collect soil samples, but not interior dust samples:

- Property 217
- Property 303

Confirmatory interior dust samples were not collected from the following locations because property owners chose not to grant access:

- Property 111
- Property 116
- Property 121
- Property 123

Interior dust samples were not collected from the following properties because they were not identified for interior dust sample collection by USEPA and Louis Berger because no dwelling was present on the property.

- Property 201
- Property 209
- Property 213
- Property 226
- Property 227
- Property 229
- Property 304

Interior dust samples were not collected from the following properties because the property owners chose to rescind access after initially granting it:

- Property 205
- Property 218



In order to preserve property owner confidentiality, each property has been assigned a unique identification number. The table below provides a key reference for each property address and its unique identification.

Property ID	Property Address
<i>Phase 2 Tier III Properties</i>	
ROW Area 1	Hamilton Avenue
ROW Area 2	New Market Avenue
ROW Area 3	Garibaldi Avenue
ROW Area 4	Fulton Avenue
ROW Area 5	Belmont Avenue
ROW Area 6	Kenneth Avenue
ROW Area 7	Hancock Street
ROW Area 8	Jackson Avenue
201	Arlington Avenue
202	1126 Belmont Avenue
203	224 Delmore Avenue
204	228 Delmore Avenue
205	501 Fulton Street
206	610 Garibaldi Avenue
207	725 Garibaldi Avenue
208	711 Hamilton Boulevard
209	807 Hamilton Boulevard
210	807 Hamilton Boulevard
211	909 Hamilton Boulevard
212	1003 Hamilton Boulevard
213	Hamilton Boulevard
214	321 Hancock Street
215	325 Hancock Street
216	329 Hancock Street
217	409 Hancock Street
218	413 Hancock Street
219	417 Hancock Street
220	419 Hancock Street
221	200 New Market Avenue
222	203 New Market Avenue
223	211 New Market Avenue
224	302 New Market Avenue
225	SE Corner of Hancock Street and New Market Avenue
226	135 Tremont Avenue
227	Arlington Avenue
228	NW Corner of Belmont and Spicer Avenue
229	SE Corner New Market Avenue and Hamilton Boulevard



Property ID	Property Address
<i>Phase 2 Tier II Properties</i>	
301	112 Delmore Avenue
302	216 Delmore Avenue
303	609/607 Hamilton Boulevard
304	Harvard Avenue
305	1000 Garibaldi Avenue
306	127 Jackson Avenue
307	131 Jackson Avenue
<i>Confirmatory Dust Sampling at Phase 1 Properties</i>	
110	124 Delmore Avenue
111	132 Delmore Avenue
112	136 Delmore Avenue
116	220 Delmore Avenue
121	104 Arlington Avenue
123	127 Arlington Avenue



1. Background

The Cornell-Dubilier Electronics Superfund Site (the Site) is located at 333 Hamilton Boulevard in South Plainfield, Middlesex County, New Jersey (NJ) (Figure 1). The Site consists of the former Cornell-Dubilier Electronics Corporation, Inc. (CDE) facility, recently known as the Hamilton Industrial Park, consisting of 26 acres that previously contained 18 subdivided buildings, contaminated portions of the Bound Brook adjacent to and downstream of the former CDE facility, groundwater, and contaminated residential, municipal, and commercial properties in its vicinity.

The CDE operated from 1936 to 1962, manufacturing electronic components including capacitors. Polychlorinated biphenyls (PCBs) and chlorinated organic degreasing solvents were used in the manufacturing process, and it has been alleged that during the CDE's period of operation, the company disposed of PCB-contaminated materials and other hazardous substances at the facility. A former employee has claimed that the rear of the property was saturated with transformer oils and that capacitors were buried behind the facility during the same time period (Foster-Wheeler, 2002).

The historic practices described above at the former CDE facility raised the concern that vicinity properties had the potential to be contaminated with PCBs via the airborne entrainment of contaminated particulates (*i.e.*, fugitive dust emissions) and/or transport by vehicles (Foster-Wheeler, 2001). Studies performed on vicinity properties (summarized in Section 1.1, below) indicated that contamination from the former CDE facility had migrated to nearby areas. PCBs had been detected in groundwater, soils, and in building interiors at the industrial park; at adjacent residential, commercial, and municipal properties; and in surface water and sediments of the Bound Brook (USEPA, 2003).

In order to facilitate investigation and remediation efforts, the USEPA separated the Site into multiple Operable Units. Operable Unit-1 (OU-1) consists of the residential, commercial, and municipal properties in the vicinity of the former CDE facility. A Record of Decision (ROD) for OU-1 was signed on September 30, 2003. Operable Unit-2 (OU-2) consists of contaminated facility site soils and buildings. A ROD for OU-2 was signed on September 30, 2004; Remedial Activities (RA) for site buildings was completed in 2008, and RA for site soils is ongoing (and is expected to be completed in late 2011). Operable Unit-3 (OU-3) addresses the contaminated groundwater and Operable Unit-4 (OU-4) addresses contaminated sediments in the adjacent Bound Brook; the remedial investigations/feasibility studies (RI/FS) for OU-3 and OU-4 are ongoing.



The 2003 ROD for OU-1 defines a remediation goal for the OU-1 properties of 1.0 parts per million (ppm) for Total PCBs in soil. The same criterion serves as the remediation goal for interior dust. The 1.0 ppm criterion is equal to 1.0 milligram per kilogram (mg/kg) and to 1,000 micrograms per kilogram (ug/kg).

In 2011, the USEPA defined four property categories based on Phase 1 sampling conducted in 2008 by Malcolm Pirnie and previous sampling performed by USEPA and others (Malcolm Pirnie, 2009):

- Tier I: Properties that have been previously sampled (either in 2008 or earlier) and found to contain Total PCBs at concentrations requiring RA.
- Tier II: Properties located adjacent to Tier I Properties.
- Tier III: Properties that have not been sampled previously and where additional sampling is needed to determine if the existing proximate samples are representative of conditions.
- Confirmatory: Properties which underwent USEPA-conducted cleaning based on the results obtained during the 2008 Phase 1 efforts (described below) and require additional sampling to confirm that PCB concentrations are below the ROD criterion of 1 ppm following cleaning.

[Note: These ‘Tier’ definitions are not related to the Tier I, Tier II, and Tier III investigations conducted in the late 1990s as outlined in Section 1.1 below.]

This Data Characterization Report presents analytical results for the Phase 2 soil and interior dust investigation conducted at OU-1 during 2011. Properties sampled during this investigation, as identified by USEPA, included:

- Tier II Properties:
 - Individual, Privately-Owned Properties, which are properties owned by the residents of South Plainfield. Interior dust and/or soil samples were collected from these properties. Surface and deep soil samples were obtained from these properties;
- Tier III Properties:
 - Right of Way (ROW) Areas, which are areas along the streets of South Plainfield owned by the Borough of South Plainfield. Only surface soil samples were obtained in ROW areas;



- Individual, Privately-Owned Properties, which are properties owned by the residents of South Plainfield. Interior dust and/or soil samples were collected from these properties. Surface and deep soil samples were obtained from these properties; and
- Individual Properties Owned by the Borough of South Plainfield, which are properties owned by the Borough. Surface and deep soil samples were collected from these properties.
- Confirmatory Properties
 - Individual, Privately-Owned Properties, which are properties owned by the residents of South Plainfield which underwent USEPA-conducted cleaning in 2010 based on the results obtained during the 2008 Phase 1 investigation. Confirmatory interior dust samples were collected from these properties.

Tier I properties were not sampled as part of 2011 investigation activities.

1.1. Summary of Previous Investigations Performed at OU-1

This section summarizes existing historical data that have been collected at OU-1. The following information was obtained from the Foster-Wheeler Final Remedial Investigation Report for OU-1 Off-Site Soils dated August 2001, the OU-1 ROD, historical reports issued by Roy F. Weston, Inc., and the Final Data Characterization Report issued by Malcolm Pirnie in January 2009.

1.1.1. USEPA Surface Soil Sampling, June 1997

The USEPA conducted soil sampling at residential properties located adjacent to the former CDE facility on June 26 and 27, 1997. A total of 23 soil samples (20 environmental and three quality assurance/quality control [QA/QC]) were collected from a depth interval of 0 to 3 inches below ground surface (bgs) and were analyzed for total lead, total cadmium, and PCB Aroclors.

Detected PCB concentrations were presented as Aroclor 1254. Total PCB concentrations were not provided (*e.g.*, total calculated as a sum of the Aroclors). Aroclor 1254 was detected (Foster-Wheeler, 2001; Weston, 1997).

Further details on this investigation can be found in the Final Investigation Report for Operable Unit 1 (OU-1) Off-Site Soils issued by Foster-Wheeler in August 2001 and the Sampling Trip Report, Cornell-Dubilier Electronics issued by Roy F. Weston, Inc. in July 2007.



1.1.2. USEPA Tier I Residential Soil Sampling, October 1997

The USEPA conducted soil sampling at 16 residential properties located in the vicinity of the former CDE facility from October 27 through 30, 1997 as a follow-up to the June 1997 sampling event described above in Section 1.1.1. A total of 363 soil samples (327 environmental and 36 QA/QC) were collected from a depth interval of 0 to 2 inches below ground surface and analyzed for PCB Aroclors and Total PCBs (Weston, 1998e).

Detected PCB concentrations were presented as Total PCBs and as individual Aroclors. Total PCB concentrations ranged from non-detect (ND) to a maximum of 22 mg/kg. Detected Aroclors included 1254 and 1260 (Weston, 1998e).

Further details on this investigation can be found in the Tier I Residential Sampling and Analysis Summary Report – Cornell-Dubilier Electronics issued by Roy F. Weston, Inc. in June 1998.

1.1.3. USEPA Interior Dust Sampling, November 1997

The USEPA collected interior dust samples from 12 residential properties located in the vicinity of the former CDE facility on November 17 and 18, 1997 using Nilfisk GS-80 High Efficiency Particulate Air (HEPA) vacuums. The samples were analyzed for PCB Aroclors. Between two and four samples were collected from each property for a total of 37 samples (Weston, 1998f).

Detected PCB concentrations were presented as individual Aroclors. The report noted that Aroclor identifications considered weathering of the contaminants. Total PCB concentrations were not provided. Detected Aroclors included 1254 and 1260 (Weston, 1998f).

Further details on this investigation can be found in the Final Report, Vacuum Dust Sampling issued by Roy F. Weston, Inc. in February 1998.

1.1.4. USEPA Tier II Residential Soil Sampling, April 1998

The USEPA conducted soil sampling at 15 additional residential properties located in the vicinity of the former CDE facility from April 20 through 23, 1998. A total of 325 samples (289 environmental and 36 QA/QC) were collected from a depth interval of 0 to 2 inches bgs and analyzed for PCB Aroclors and Total PCBs (Weston, 1998b).

Detected PCB concentrations were presented as Total PCBs and as individual Aroclors. Total PCB concentrations ranged from ND to an estimated maximum of 60 mg/kg. Detected Aroclors included 1254 and 1260 (Weston, 1998b).



Further details on this investigation can be found in the Tier II Residential Sampling and Analysis Summary Report – Cornell-Dubilier Electronics issued by Roy F. Weston, Inc. in July 1998.

1.1.5. USEPA Residential Vacuum Sampling, April 1998

The USEPA collected interior dust samples from 36 residential properties located in the vicinity of the former CDE facility from April 21 through 28, 1998 using Nilfisk GS-80 HEPA vacuums. Twenty-seven of the sampled properties were sampled for the first time, and nine of the sampled properties had been sampled previously. A total of 64 samples were collected and analyzed for PCB Aroclors (Weston, 1998d).

For the 37 interior dust samples collected at the 27 properties not sampled as part of the initial investigation, detected PCB concentrations were presented as individual Aroclors. Total PCB concentrations were not provided. Detected Aroclors included 1242, 1254, and 1260 (Weston, 1998d).

For the 27 interior dust samples collected at the nine previously sampled properties, detected PCB concentrations were presented as individual Aroclors. Total PCB concentrations were not provided. Detected Aroclors included 1254 and 1260 (Weston, 1998d).

Further details on this investigation can be found in the Final Report, Vacuum Dust Sampling issued by Roy F. Weston, Inc. in July 1998.

1.1.6. USEPA Tier III Residential Soil Sampling, May 1998

The USEPA conducted soil sampling at four residential property areas located in the vicinity of the former CDE facility on May 4 and 5, 1998. A total of 82 samples (74 environmental and eight QA/QC) were collected from a depth interval of 0 to 2 inches and analyzed for PCB Aroclors and Total PCBs. Samples were collected at a 100-foot spacing in each of the four areas (Weston, 1998c).

Detected PCB concentrations were presented as Total PCBs and as individual Aroclors. Total PCB concentrations ranged from an estimated 0.22 mg/kg to 2.9 mg/kg. Detected Aroclors included 1254 and 1260 (Weston, 1998c).

Further details on this investigation can be found in the Tier III Residential/Neighborhood Sampling and Analysis Summary Report – Cornell-Dubilier Electronics issued by Roy F. Weston, Inc. in July 1998.



1.1.7. USEPA Commercial Surface Soil and Wipe Sampling and Residential Vacuum Sampling, October 1998

The USEPA conducted interior wipe sampling and exterior soil sampling at 13 businesses located in the vicinity of the former CDE facility on October 26 and 27, 1998 and interior dust sampling at six residences on October 28, 1998. A total of 21 wipe samples were collected from all 13 businesses, and seven soil samples were collected from five of the 13 businesses. Seven interior dust samples were collected from six residences. All samples were analyzed for PCB Aroclors (Weston, 1998a).

No PCBs were detected in any of the wipe samples. For the soil and interior dust samples, detected PCB concentrations were presented as individual Aroclors. Total PCB concentrations were not provided. Aroclor 1254 was detected (Weston, 1998a).

Further details on this investigation can be found in the Final Report Vacuum, Wipe, and Soil Sampling issued by Roy. F Weston, Inc. in December 1998.

1.1.8. USEPA Tier I Residential Soil Sampling (Addendum), November 1998

The USEPA conducted soil sampling at one additional property located in the vicinity of the former CDE facility on November 14, 1998. A total of 35 soil samples (31 environmental and four QA/QC) were collected from a depth interval of 0 to 2 inches and were analyzed for PCB Aroclors and Total PCBs (Weston, 1999).

Detected PCB concentrations were presented as Total PCBs and as individual Aroclors. Total PCB concentrations ranged from 0.34 mg/kg to an estimated maximum of 6.2 mg/kg. Detected Aroclors included 1254 and 1260 (Weston, 1999).

Further details on this investigation can be found in the Tier I Residential Sampling and Analysis Summary Report, Addendum No. 1 – Cornell-Dubilier Electronics issued by Roy F. Weston, Inc., in February 1999.

1.1.9. Foster-Wheeler Remedial Investigation – 2000

Soil sampling for the Foster-Wheeler Remedial Investigation (RI) was performed from June 12, 2000 through August 1, 2000 (Foster-Wheeler, 2001). Soil samples were collected from 19 individual properties. Right-of-way (ROW) soil samples were taken adjacent to 13 roadways in the vicinity of the former CDE facility, including areas within the Bound Brook Floodplain located northwest of the former CDE facility. ROW samples were generally located adjacent to the curb within the two feet of the property. Individual property and ROW soil samples were collected at two depth intervals: 0 to 2 inches bgs and between 4 and 18 inches bgs (USEPA, 2003). A total of 864 samples (630 shallow environmental, 177 deep environmental, 38 duplicate, and 19 field blanks) were analyzed



for Target Compound List (TCL) PCBs by the USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) OLM04.2 (Foster-Wheeler, 2001).

Detected PCB concentrations were presented as Total PCBs and as individual Aroclors. Total PCB concentrations ranged from ND to 310 mg/kg. Detected Aroclors included 1254 and 1260 (Foster-Wheeler, 2001).

Further details on this investigation can be found in the Final Remedial Investigation Report for Operable Unit 1 (OU-1) Off-Site Soils for Cornell-Dubilier Electronics Superfund Site issued by Foster-Wheeler in August 2001.

1.1.10. USEPA Soil and Interior Dust Investigation – 2008

Soil and dust sampling for the USEPA investigation was performed during the spring and summer of 2008. A total of 28 properties were sampled for soil. Ten boring locations were selected by the USEPA and Malcolm Pirnie at each property. Samples from the 0 to 6-inch horizon were collected from all boring locations, and samples from the 24 to 30-inch horizon (or deepest available, if refusal was met prior to 24 inches) were taken at 5 of the 10 boring locations. A total of 15 samples were obtained at each property.

Detected PCB concentrations were presented both as Aroclors and as Total PCBs. Total PCB concentrations ranged from ND to 8.4 ppm. Further details of this investigation can be found in the Final Data Characterization Report for OU1 Soil and Interior Dust Sampling, issued by Malcolm Pirnie in January 2009 (Malcolm Pirnie, 2009).

1.2. Summary of Completed Remedial Actions

This section summarizes the previously completed remedial actions at OU-1. The following general information was obtained from the OU-1 ROD issued in September 2003 and the Foster-Wheeler Final Remedial Investigation Report for OU-1 Off-Site Soils dated August 2001. More detailed information on the actions described below can be found in the documents referenced at the end of each section, if applicable.

1.2.1. Interior Cleaning, March 1998

USEPA initiated a removal action on March 29, 1998 to clean the interiors of seven homes where PCBs were found in interior dust at levels of potential health concern (*i.e.*, above the risk range used in the Superfund Program). This removal action was completed in April 1998 (Foster-Wheeler, 2001, USEPA 2003).

1.2.2. Tier I Soil Removal Action, August 1998

On August 6, 1998, CDE and D.S.C. of Newark Enterprises, Inc. entered into an Administrative Order on Consent for a removal action that included the removal and disposal of contaminated soil from five Tier I residential properties and delineation of the vertical and horizontal extent of PCB contamination at one additional property. This



removal action was completed in September 1999 (Foster-Wheeler, 2001, USEPA, 2003).

Further details on this removal action can be found in the following report issued by Environ International Corporation in July 1999:

- Tier I Residential Property Removal Action Final Report, South Plainfield, New Jersey, Volumes 1 and 2

1.2.3. Tier II Soil Removal Action, February 1999

On February 23, 1999, the USEPA ordered CDE and Dana Corporation to conduct a removal action at seven Tier II residential properties (Foster-Wheeler, 2001, USEPA 2003). On April 28, 1999, a “Participate and Cooperate Order” was issued to D.S.C. of Newark Enterprises, Inc. and Federal Pacific Electric Company to cooperate and participate in the soil removal action being conducted by CDE and Dana Corporation (Foster-Wheeler, 2001, USEPA 2003). This removal action was completed in January 2000.

Further details on this removal action can be found in the following report issued by Environ International Corporation in January 2000:

- Tier II Residential Property Removal Action Final Report, South Plainfield, New Jersey, Volumes 1 and 2

1.2.4. Interior Cleaning, January 2000

USEPA conducted a removal action to clean the interiors of eight homes where PCBs were found in interior dust at a concentration that posed a potential health concern for residents. This removal action was completed in January 2000 (USEPA, 2003).

1.2.5. Soil Removal, April 2000

On April 14, 2000, the USEPA ordered D.S.C. of Newark Enterprises, Inc. to remove contaminated soils at one property (Foster-Wheeler, 2001). D.S.C. agreed to perform the work required, but had failed to do so as of September 2003 (USEPA, 2003). This work was subsequently performed by the USEPA, using federal funds. The remediation of this property was completed in September 2004.

1.2.6. CAPE Environmental Remedial Action, 2005-2007

CAPE Environmental, under contract to the United States Army Corps of Engineers (USACE), conducted soil remedial actions at three properties in November 2005 and at one property in April 2007. This remedial action was completed in May 2007 (CAPE, 2007).



Further details on this remedial action can be found in the Final Remedial Action Completion Report Cornell-Dubilier Electronics Superfund Site OU-1 Draft CAPE Environmental Remedial Action Closeout Report issued by CAPE in September 2009.

1.2.7. USEPA Remedial Action, 2009

USEPA conducted a removal action to clean the interiors of six homes where PCBs were found in interior dust at concentrations that posed a potential health concern for residents. These properties were identified as properties 110, 111, 112, 116, 121, and 123 in the Phase 1 Final Data Characterization Report for OU1 Soil and Interior Dust Sampling (Malcolm Pirnie, 2009).



2. Objectives

Previous investigations performed at OU-1 (summarized in Section 1.1 of this document) included soil, wipe, and interior dust sampling conducted within individual property limits and/or within adjacent ROW areas. The ROD for OU-1, dated September 2003, requires that additional sampling be performed in a study area of approximately 59 properties to determine if additional properties require remediation. Table 5 of the ROD identifies areas requiring additional sampling. Investigation of 28 of those properties was conducted during Phase 1 in 2008. Investigation of an additional 27 previously uninvestigated properties, 8 uninvestigated ROW areas, and 2 previously investigated and remediated dwellings was performed during Phase 2 in 2011.

The objectives for this Phase 2 study are as follows:

1. To characterize Total PCB concentrations (as PCB Aroclors) in the soils on vicinity properties.
2. To characterize Total PCB concentrations (as PCB Aroclors) in the interior dust on vicinity properties.
3. To characterize Total PCB concentrations (as PCB Aroclors) in the interior dust within Confirmatory properties (*i.e.*, dwellings that were cleaned by the USEPA in 2010).

All properties sampled for soils and interior dust during this investigation were selected by the USEPA and The Louis Berger Group (Louis Berger) based on data obtained from previously conducted investigations at OU-1.



3. Methodology

Investigation activities at OU-1 ROW and vicinity properties were performed by Louis Berger and ARCADIS-US/Malcolm Pirnie (Malcolm Pirnie) to identify the presence of PCB contamination in soils and interior dust (where applicable) at selected properties. Previously-approved Standard Operating Procedures (SOPs) were followed for each field investigation and associated activity. All SOPs are attached to either the Quality Assurance Project Plan (QAPP; Louis Berger and Malcolm Pirnie, 2011c) or the Field Sampling Plan (FSP; Louis Berger and Malcolm Pirnie, 2011a [attached to the QAPP]) developed for OU-1. Each investigation-related activity is described in the following sections.

Only one QAPP Modification was required during this sampling effort. Based on the subsurface conditions encountered in a number of locations (*e.g.*, rocks, debris, hard base material), it was not possible to advance the boring using only the hand auger. It became necessary to employ the use of a 5-foot long breaker bar (sometimes called a pinch bar) to obtain samples from the depths required.. The Louis Berger Field Team Leader proposed use of the breaker bar to facilitate the removal of obstructions to the USEPA. The USEPA agreed and obtained a breaker bar from the OU-2 RA contractor for trial use by the OU-1 field team. The tool was decontaminated between borings and found to facilitate sample collection. Accordingly, a breaker bar was purchased and used specifically for this purpose after the first day of trial use of the loaned tool. The tool was used regularly, but not at every ROW or individual property sampling location.

In addition, locational data for all soil samples and major property features were obtained by a NJ-licensed surveyor to ensure the proper representation of these features on drawings produced as part of the data processing and reporting effort (see Figures).

3.1. Property Selection

The selection of properties for sampling during Phase 2 was based on data obtained during previous investigations conducted at the Site; in particular, Louis Berger considered ROW data obtained during the RI, results yielded by historical Tier investigations, and the data collected during the 2008 Malcolm Pirnie investigation. These results were used to identify data gaps and to develop of a list of properties where existing soil contamination above the ROD criterion was not bound by proximal non-detect results. This list was presented to the USEPA as the Tier III properties (including ROW and individual properties) recommended for dust and/or soil sampling during the Phase 2 investigation.



In addition, the USEPA added the Tier II and Confirmatory Dust Properties to the Louis Berger list. Once this list was approved by the USEPA and finalized, Louis Berger used the final list and the existing mapping information to develop figures for use in selecting sampling points in the field for each property.

3.2. Property Access

Once the final list of properties was prepared, the team, consisting of the USEPA, the Louis Berger Field Team Leader, and additional Louis Berger personnel, worked together to identify and gather the initial ownership data for all properties selected for sampling. Once all owners were identified and contact information obtained, the USEPA worked to gain access to the properties through the mailing of formal access agreements and explanatory letters, phone calls, and visits to each property. The Louis Berger Field Team Leader assisted in this process when needed.

Once the owner of a listed Tier III or Tier II property had signed the access agreement allowing the USEPA and Louis Berger to access the property, the listed property was considered a “confirmed” property and the Louis Berger Field Team Leader began contacting those owners to schedule times for the identification of boring locations, the collection of soil and dust samples, and the performance of survey activities to obtain reliable locational data for the soil borings and site features.

Once the owner of a Confirmatory Dust Property had signed the access agreement allowing the USEPA and Louis Berger to access the property, the listed property was considered a “confirmed” property and the USEPA began contacting those owners to set up appointments to collect dust samples. Those appointments were based on the availability of the field team.

It should be noted that not all selected owners granted access to their properties, and that some owners who originally granted access rescinded that access when contacted to schedule interior dust sampling. A list of the properties sampled for soil and/or interior dust and a brief chronology of property access is presented in Chapter 4.

3.3. Soil Sampling

Soil samples were collected from a total of 35 areas/properties

- 18 Tier III properties owned by residents of South Plainfield;
- 2 Tier III properties owned by the Borough of South Plainfield;
- 8 Tier III ROW Areas under the jurisdiction of the Borough of South Plainfield;
and



- 7 Tier II properties owned by residents of South Plainfield.

3.3.1. Sample Locations

Prior to the collection of samples in ROW areas and at each individual property, boring locations were identified. Locations were selected by the USEPA and either the Louis Berger Deputy Project Manager and/or the Louis Berger Field Team Leader during site walkthroughs conducted during May, June, and August 2011.

Once the sampling points were selected, the USEPA and Louis Berger personnel identified which borings would only be sampled from the 0 to 6-inch depth interval and which borings would be sampled from both the 0 to 6-inch and 24 to 30-inch depth intervals (where possible). If refusal was encountered in a particular location prior to reaching a depth of 30 inches, the deep sample was obtained from the deepest interval measuring approximately 6 inches in length.

ROW Area Boring Locations

Six ROW areas (ROW Area 1 through ROW Area 6) were identified by Louis Berger. Each ROW consisted of a unique roadway (*e.g.*, ROW Area 1 was identified as areas along Hamilton Boulevard, ROW Area 2 as areas along New Market Avenue, etc.) Soil boring locations in each ROW area were identified in the field during a site walkthrough conducted on May 24, 2011 by the USEPA, the Louis Berger Deputy Project Manager, and the Louis Berger Field Team Leader. Boring locations were spaced based on the site conditions (*e.g.*, whether or not a sidewalk was present or other obstructions existed such as deep gravel or pavement). Sampling locations were positioned to create cross-street transects where possible. Sampling near creosoted utility poles was avoided. Each selected boring location was recorded on the figures developed by Louis Berger (see Figures RW1-1A through RW8-1A). The hand-marked point locations on these maps were reviewed and approved by the USEPA prior to leaving each ROW Area.

Once sampling had commenced, two additional ROW Areas (ROW Area 7 and ROW Area 8) were identified by the USEPA to ensure that data were obtained near properties where access had either not yet been received or where the homeowner chose to not grant access after initially allowing access. Identification of these additional ROW areas was based on proximate exceedences of the ROD criterion during previous sampling events. No walkthrough was conducted to locate points in these areas; the desired locations were communicated to the Louis Berger Deputy Project Manager by the USEPA via telephone. In addition, the extent of ROW Area 6 was expanded. Another walkthrough was conducted by the USEPA and the Louis Berger Field Team Leader to identify additional locations near public ball fields.



Individual Property Boring Locations

Access was granted to collect soil samples at 28 Tier III and 7 Tier II locations during the Phase 2 program. Boring locations at these properties were selected by USEPA and the Louis Berger Deputy Project Manager and/or the Louis Berger Field Team Leader during walkthroughs conducted on June 7, June 15, June 28, and June 29, 2011. Most boring locations were placed such that the resulting data would be uniformly distributed across each property. Borings were also placed to create transects where possible. Some boring locations were biased toward potential high use areas (*i.e.*, near swing sets, pool areas, etc.), while others were positioned away from disturbed areas (*e.g.*, gardens).

3.3.2. Sample Collection and Analysis

Tier III and II private property owners were contacted by the Louis Berger Field Team Leader at least one day in advance to remind the owner that previously-discussed sampling would be taking place and to confirm the agreed-upon schedule. Since all but two of the owners agreed to allow the field team to access their property whenever it was convenient, full weeks of sampling work could be planned out in advance. The field team also notified the resident upon arrival at the property to communicate that they had arrived to perform the previously-discussed sample collection work. No advanced notice was required prior to sampling the Borough-owned properties and ROW areas.

A total of 162 samples were collected in ROW Areas 1 through 8 from the 0 to 6-inch depth interval. Sampling locations for each ROW Area are shown on Figures RW1-1A through RW8-1A. The location of each ROW Area relative to one another is shown Figure RW-KP.

Due to the varying size of each property and physical layout of houses and appurtenances on each property, the total number of locations to be sampled at each individual property varied. Samples were collected from the 0 to 6-inch depth interval at all boring locations; these samples were identified through the addition of an “S” (surface) to the end of the sample ID. A total of 367 surface samples were obtained from individual Tier III and Tier II properties.

For the 0 to 6-inch depth interval samples, although the thickness of grass root mat varied by property, the soil was tapped off of the roots to obtain most of the upper 2 or 3 inches. When samples were located in areas without grass/lawn cover, sampling commenced from ground level.

In addition, a sample from the 24 to 30-inch depth interval was obtained from a subset of the boring locations. These samples were identified through the addition of a “D” (deep) to the end of the sample ID. The locations of these deep samples were selected by the USEPA and Louis Berger prior to the initiation of sampling. A total of 177 deep samples



were obtained from individual Tier III and Tier II properties. Sampling locations for each property are shown on Figures 201 through 307..

At the locations where sampling of the 24 to 30-inch depth interval was proposed, subsurface conditions that prevented sampling of this interval were only encountered in a few locations. A shallower interval was obtained at these locations, and this interval is defined in the mapping and field notes associated with the sample. In the event refusal was encountered at a depth shallower than 30 inches, the location was not moved and a decontaminated breaker bar was used to dislodge the obstruction. The location of each property relative to one another and to the former CDE facility is shown on Figure PROP-KP.

All soil samples were obtained using decontaminated stainless steel hand augers. Collected soils were placed in decontaminated stainless steel bowls, scanned using a photoionization detector (PID), and homogenized using decontaminated stainless steel tablespoons, in accordance with the approved SOPs. Full details of all sample collection and processing procedures can be found in Attachment 1 to the FSP, SOP No. 2: Procedure for Shallow Soil Collection and Processing. PID readings were taken from each sample in accordance with Attachment 4 to the FSP, SOP No 7: Procedure for Calibration and Operation of a Photoionization Detector (NJDEP, 2005).

Once soil sampling was complete, Louis Berger attempted to restore each sampling location to the initial observed condition. If grass was encountered, the sod was carefully removed with a trowel and set aside. Upon completion of sampling, the borehole was backfilled with any excess soil removed during sampling and the backfilled soil was compacted using a 2-inch by 2-inch by 4-foot wooden post driven using a 45 ounce hammer. Topsoil (purchased from a local garden center) was added to the borehole to return it to the original elevation, and then the sod originally removed was pressed back into the ground.

Disposable items generated during the sampling process (*e.g.*, nitrile gloves, paper towels, etc.) were collected and disposed of in accordance with procedures described in Section 8.0 of the FSP (Louis Berger and Malcolm Pirnie, 2011a).

Soil samples were analyzed for PCB Aroclors by USEPA Contract Laboratory Program (CLP) laboratories. Worksheets Nos. 12 and 15 of the QAPP provide a detailed listing of the specific PCB Aroclors for which samples were analyzed.

3.3.3. Coordinate Information

As sampling at each location was completed, a temporary wooden marker was labeled with the location number and driven flush with the ground surface. A measuring tape was also used to record where each sample was collected; measurements were made from the



borehole to at least two permanent physical features (*i.e.*, distance from house, fence, or walkway). Once sampling was completed, a NJ-licensed surveyor accurately recorded the location of each sampling point. Louis Berger personnel assisted the surveyor in locating each point by finding each of the stakes or, when deep grass or debris was encountered, by using the field measurement data to locate the stake, when necessary.

3.3.4. QA/QC Sample Frequency and Collection

For QA/QC purposes, field QC samples were collected in accordance with Worksheet No. 20 of the QAPP (Louis Berger and Malcolm Pirnie, 2011c). Blind duplicate samples were collected by obtaining two aliquots from a homogenized soil sample and submitting both for analysis. Duplicates were collected approximately every 20 samples and were labeled using the following format: CDE-OU1-SB-201-D1. Field rinsate samples were collected at least once per week by pouring laboratory-grade, analyte-free water over decontaminated field sampling equipment, and collecting the water in certified clean, purchased glassware. Both field duplicate and rinsate samples were sent to the laboratory for analysis alongside the non-QA/QC samples.

3.3.5. Laboratory Measurement Procedures and Criteria

Analyses were conducted in accordance with the analytical methods described in Worksheet No. 15 in the QAPP (Louis Berger and Malcolm Pirnie, 2011c).

3.3.6. Sample Containers and Preservation Techniques

Soil samples were containerized in certified clean sample jars for transport to the laboratory. Samples were preserved as described in Worksheet No. 19 in the QAPP.

3.3.7. Decontamination Procedures

All non-dedicated sampling equipment was decontaminated between samples. Equipment decontamination was conducted as described in Attachment 3 to the FSP, SOP No. 4: Procedure for Conducting Decontamination of Soil Sample Collection Equipment.

Decontamination fluids which were generated during sampling were containerized and transferred into 55 gallon storage drums located at the former CDE facility. Decontamination fluids were handled in accordance with procedures described in Section 8.0 of the Draft FSP (Louis Berger and Malcolm Pirnie, 2011a). Disposal of containerized fluids will be coordinated with USACE and USEPA.

3.4. Interior Dust Sampling

Interior dust samples were collected at a total of 15 properties: 9 Tier III, 4 Tier II, and 2 Confirmatory. A total of 27 properties were initially identified for interior dust sampling by the USEPA; however, 12 property owners either decided not to grant access, were unresponsive to attempts schedule appointments, or rescinded access originally granted to



USEPA. Further, a single property had just been completely remodeled on the inside; the sampling of this home would not have yielded a result representative of residential contact. Up to two samples were collected from each of the 15 properties.

3.4.1. Sample Locations

Specific dust collection locations within each home were determined based on general interior usage, with one sample generally originating from a high-use area such as the living room and/or dining room, and the second from a bedroom area, unless the property owner requested that a different area (*e.g.*, basement or kitchen) be sampled. For some properties, this approach was hindered by the limited amount of dust available at a property and the volume required by the laboratory for analysis. In those cases, a single sample was submitted which represented a composite of high- and low-use areas.

3.4.2. Sample Collection and Analysis

Dust samples were collected from each property selected for investigation. Dust samples were obtained using an Omega Vac Model AH220 vacuum and single-use 0.3 micron High Efficiency Particulate Air (HEPA) filters as specified in Attachment 2 to the FSP, SOP No. 3: Procedure for the Collection of Indoor Dust.

Prior to the start of sampling, four empty vacuum filters were weighed using a properly calibrated digital scale. Two vacuum filters were used for each sample at the majority of properties. Generally, it was necessary to collect sample material from large areas (*e.g.*, entire rooms, hallways, etc.) in order to obtain adequate sample volume. At the conclusion of sampling, the filled vacuum filters were weighed, and the total weight and the size of the area(s) sampled were recorded in the field notebook and on the field data sheet included as part of Attachment 2 to the FSP, SOP No. 3: Procedure for the Collection of Indoor Dust.

Samples were analyzed for PCB Aroclors using USEPA CLP laboratories. Worksheet Nos. 12 and 15 of the QAPP provide a detailed listing of the specific PCB Aroclors for which samples were analyzed.

3.4.3. QA/QC Sample Frequency and Collection

Interior dust sampling conducted during Phase 1 yielded the observation that not enough dust was available in a given home to collect field QC samples. Therefore, in accordance with Worksheet No. 20 of the Draft QAPP, no field QC samples were obtained.

3.4.4. Laboratory Measurement Procedures and Criteria

Analyses were conducted in accordance with the analytical methods described in Worksheet No. 15 in the Draft QAPP.



3.4.5. Sample Containers and Preservation Techniques

Samples were preserved as described in Worksheet No. 19 in the QAPP. Interior dust samples were transported to the laboratory in the filters in which they were obtained. Once collection of dust was complete for each filter, the filter was placed into a certified-clean plastic vial. The vial was then placed into a ziplock bag marked with the sample ID information for shipment to the laboratory. For properties where two filters were collected for a single sample, both vials were included in the same ziplock bag. The analytical technician performed any required compositing activities.

3.4.6. Decontamination Procedures

A new pair of disposable nitrile gloves and a new vacuum filter were used by sampling personnel at each sample location to prevent cross-contamination. At the conclusion of each sampling event, any disposable items generated as part of the sampling were collected and disposed of in accordance with procedures described in Section 8.0 of the FSP.

3.5. Sample Management and Preservation

Sample management followed the protocols specified in SOP No. 1: Procedure to Conduct Sample Management for CLP and non-CLP Samples, attached to the QAPP and developed in accordance with the CLP Guidance for Field Samplers (USEPA, 2011). Samples were preserved as described in Worksheet No. 19 of the QAPP.

3.6. Data Validation

Sample analysis was performed using USEPA CLP laboratories; data validation was performed by USEPA contractors.

Evaluation of the data validation performed by USEPA contractors indicated that 6 of the 731 collected samples had rejected Aroclor values (a number corresponding to approximately 1 percent of the samples). These 6 samples were associated with one of the 8 ROW areas and 3 of the 29 individual properties sampled (approximately 8 percent). In addition, the proof sample provided to the lab to ensure that the filters being used to collect interior dust were not contaminated with PCBs had a number of rejected Aroclors. The table below shows which samples and Aroclors were qualified as rejected during the data validation:

Property ID	Matrix	Sample ID	Rejected Aroclor
ROW Area 5	Soil	CDE-OU1-SB-RW5-18	Aroclor 1254



Property ID	Matrix	Sample ID	Rejected Aroclor
216	Interior Dust	CDE-OU1-ID-216-01A	Aroclor 1016 Aroclor 1221 Aroclor 1232 Aroclor 1242 Aroclor 1248 Aroclor-1254 Aroclor-1260 Aroclor-1262 Aroclor 1268
227	Soil	CDE-OU1-SB-227-12S CDE-OU1-SB-227-14S	Aroclor 1254 Aroclor 1254
306	Soil	CDE-OU1-SB-306-5S CDE-OU1-SB-306-D1	Aroclor-1254 Aroclor-1254
None	Filter material	CDE-OU1-ID-Proof-01	Aroclor 1016 Aroclor 1221 Aroclor 1232 Aroclor 1242 Aroclor 1248 Aroclor 1268

The rationale for rejection was included in the data validation reports accompanying the final validated data provided by the CLP lab. These rationale can be summarized into three categories:

- The percent differences between analyte results exceeding 100 percent, with the detected compounds qualified as R:
 - CDE-OU1-SB-227-12S
 - CDE-OU1-SB-227-14S
 - CDE-OU1-SB-RW5-18
 - CDE-OU1-SB-306-5S
 - CDE-OU1-SB-306-D1
- The sample extraction fell outside of the expanded extraction holding time criteria; detected compounds were qualified as J, while non-detected compounds were qualified as R:
 - CDE-OU1-ID-Proof-01
- The undiluted Aroclor samples had surrogate percent recoveries of less than 10 percent; non-detected compounds were qualified as R
 - CDE-OU1-ID-216-01A



The remainder of the data were found to be usable, however a significant portion of it was qualified as estimated for various QC reasons. The rationale for estimation is discussed in greater detail in Appendix B.



4. Results

Soil samples were collected from eight ROW Areas between May 31 and June 2, 2011, and also on August 12, 2011. Soil samples were collected from 20 Phase 2 Tier III properties between June 7 and July 7, 2011, and dust samples were collected from nine Phase 2 Tier III properties between June 22 and August 2, 2011. Soil samples were collected from seven Phase 2 Tier II properties between June 28 and July 6, 2011, and dust samples were collected from four Phase 2 Tier II properties between July 1 and 13, 2011. Confirmatory dust samples were collected from two Phase 1 properties on July 20, 2011. These time periods are inclusive of the dates when sampling points for the respective ROW Areas and properties were first identified.

Property ID	Sampling Performed
<i>Phase 2 Tier III Properties</i>	
ROW Area 1	Sampled for surface and deep soil.
ROW Area 2	Sampled for surface and deep soil.
ROW Area 3	Sampled for surface and deep soil.
ROW Area 4	Sampled for surface and deep soil.
ROW Area 5	Sampled for surface and deep soil.
ROW Area 6	Sampled for surface and deep soil.
ROW Area 7	Sampled for surface and deep soil.
ROW Area 8	Sampled for surface and deep soil.
201	Sampled for surface and deep soil; not sampled for interior dust.
202	Field recon indicated sampling not necessary.
203	Sampled for surface and deep soil; not sampled for interior dust.
204	Sampled for surface and deep soil and interior dust.
205	Sampled for surface and deep soil; not sampled for interior dust.
206	Sampled for surface and deep soil and interior dust.
207	Not sampled; Access not granted.
208	Not sampled; Access not granted.
209	Sampled for surface and deep soil.
210	Sampled for surface and deep soil and interior dust.
211	Sampled for surface and deep soil and interior dust.
212	Sampled for surface and deep soil and interior dust.
213	Sampled for surface and deep soil.
214	Sampled for surface and deep soil.
215	Not sampled; Access not granted.
216	Sampled for surface and deep soil and interior dust.



Property ID	Sampling Performed
217	Sampled for surface and deep soil.
218	Sampled for surface and deep soil.
219	Sampled for surface and deep soil and interior dust.
220	Sampled for surface and deep soil and interior dust.
221	Not sampled; Access not granted.
222	Not sampled; Access not granted.
223	Sampled for surface and deep soil and interior dust.
224	Not sampled; Access not granted.
225	Not sampled; Access not granted.
226	Sampled for surface and deep soil.
227	Sampled for surface and deep soil.
228	Not sampled; Access not granted.
229	Sampled for surface and deep soil.
<i>Phase 2 Tier II Properties</i>	
301	Sampled for surface and deep soil.
302	Sampled for surface and deep soil and interior dust.
303	Sampled for surface and deep soil.
304	Sampled for surface and deep soil.
305	Sampled for surface and deep soil and interior dust.
306	Sampled for surface and deep soil and interior dust.
307	Sampled for surface and deep soil and interior dust.
<i>Confirmatory Dust Sampling at Phase 1 Properties</i>	
110	Sampled for interior dust.
111	Not sampled; Access not granted.
112	Sampled for interior dust.
116	Not sampled; Access not granted.
121	Not sampled; Access not granted.
123	Not sampled; Access not granted.

The location of each ROW Area and property relative to one another and to the former CDE facility is shown on Figures RW-KP and PROP-KP, respectively.

4.1. Right of Way (ROW) Areas

4.1.1. ROW Area 1 – Hamilton Avenue

A total of 30 soil samples, including duplicates, were collected from ROW Area 1 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 3 out of 30 soil samples from this ROW area exceeded the ROD criterion for Total PCBs of 1.0 ppm.



Soil sampling was performed at ROW Area 1 on June 1 and 2, 2011 by Louis Berger personnel. A total of 28 shallow borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-RW1-01 through CDE-OU1-SB-RW1-28. One soil sample was obtained from the 0 to 6 inch depth interval at each boring location. Two duplicate samples (CDE-OU1-SB-RW1-D4 and CDE-OU1-SB-RW1-D5), which are duplicates of soil samples CDE-OU1-SB-RW1-06 and CDE-OU1-SB-RW1-18, respectively, were collected from ROW Area 1.

Soil sampling locations are shown on Figures RW1-1A through RW1-1D, and a summary of soil sampling data (including Aroclor data) is presented in Table ROW-1.

Analytical results indicate that Total PCBs were detected in all 30 soil samples with concentrations ranging from 0.079 ppm in sample CDE-OU1-SB-RW1-05 to 2.720 ppm in sample CDE-OU1-SB-RW1-03. Soil sample results for the following 3 out of 30 samples obtained in this ROW area exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-RW1-02 (2.220 ppm),
- CDE-OU1-SB-RW1-03 (2.720 ppm), and
- CDE-OU1-SB-RW1-04 (1.020 ppm).

4.1.2. ROW Area 2 – New Market Avenue

A total of 35 soil samples, including duplicates, were collected from ROW Area 2 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results from 28 out of 35 soil samples from this ROW area exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil sampling was performed at ROW Area 2 on June 2, 2011 and on August 12, 2011 by Louis Berger personnel. A total of 45 shallow borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-RW2-01 through CDE-OU1-SB-RW2-46. One soil sample was obtained from the 0 to 6 inch depth interval at each boring location. Sample CDE-OU1-SB-RW2-06 was initially proposed for sampling during a walkthrough inspection, but was not collected based on subsequent field measurements that determined it would have been outside of ROW Area 2 due to the 50-ft spacing requirement. Two duplicate samples (CDE-OU1-SB-RW2-D6 and CDE-OU1-SB-RW2-D7), which are duplicates of soil samples CDE-OU1-SB-RW2-07 and CDE-OU1-SB-RW2-18, respectively, were collected from ROW Area 2.

Soil sampling locations are shown on Figures RW2-1A and RW2-1C, and a summary of soil sampling data (including Aroclor data) is presented in Table ROW-2.



Analytical results indicate that Total PCBs were detected in all 45 soil samples with concentrations ranging from 0.470 ppm in sample CDE-OU1-SB-RW2-02 to 15.40 ppm in sample CDE-OU1-SB-RW2-10. Soil sample results for the following 35 out of 45 samples obtained in this ROW area exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-RW2-01 (1.340 ppm),
- CDE-OU1-SB-RW2-04 (3.300 ppm),
- CDE-OU1-SB-RW2-07 (1.010 ppm),
- CDE-OU1-SB-RW2-D6 (1.000 ppm),
- CDE-OU1-SB-RW2-08 (14.400 ppm),
- CDE-OU1-SB-RW2-09 (5.640 ppm),
- CDE-OU1-SB-RW2-10 (15.400 ppm),
- CDE-OU1-SB-RW2-11 (2.930 ppm),
- CDE-OU1-SB-RW2-12 (11.000 ppm),
- CDE-OU1-SB-RW2-13 (1.930 ppm),
- CDE-OU1-SB-RW2-14 (5.350 ppm),
- CDE-OU1-SB-RW2-15 (2.060 ppm),
- CDE-OU1-SB-RW2-16 (7.570 ppm),
- CDE-OU1-SB-RW2-17 (1.510 ppm),
- CDE-OU1-SB-RW2-18 (7.770 ppm),
- CDE-OU1-SB-RW2-D7 (7.520 ppm),
- CDE-OU1-SB-RW2-20 (3.260 ppm),
- CDE-OU1-SB-RW2-21 (2.620 ppm),
- CDE-OU1-SB-RW2-22 (1.170 ppm),
- CDE-OU1-SB-RW2-23 (1.720 ppm),



- CDE-OU1-SB-RW2-24 (1.680 ppm),
- CDE-OU1-SB-RW2-25 (2.120 ppm),
- CDE-OU1-SB-RW2-26 (1.030 ppm),
- CDE-OU1-SB-RW2-27 (3.540 ppm),
- CDE-OU1-SB-RW2-29 (1.260 ppm),
- CDE-OU1-SB-RW2-31 (1.370 ppm),
- CDE-OU1-SB-RW2-33 (1.710 ppm),
- CDE-OU1-SB-RW2-34 (1.010 ppm),
- CDE-OU1-SB-RW2-35 (1.380 ppm),
- CDE-OU1-SB-RW2-41 (6.410 ppm),
- CDE-OU1-SB-RW2-42 (10.40 ppm),
- CDE-OU1-SB-RW2-43 (4.530 ppm),
- CDE-OU1-SB-RW2-44 (10.16 ppm),
- CDE-OU1-SB-RW2-45 (1.350 ppm), and
- CDE-OU1-SB-RW2-46 (3.170 ppm).

4.1.3. ROW Area 3 – Garibaldi Avenue

A total of 35 soil samples, including duplicates, were collected from ROW Area 3 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. The result for only 1 out of 35 soil samples from this ROW area exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil sampling was performed at ROW Area 3 on May 26 and 27, 2011 by Louis Berger personnel. A total of 34 shallow borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-RW3-01 through CDE-OU1-SB-RW3-46. One soil sample was obtained from the 0 to 6 inch depth interval at each boring location. Samples at the following locations were initially proposed for sampling during a walkthrough inspection but were not collected based on subsequent field measurements that determined they were at the edge of (or outside of) the right-of-way area:



- CDE-OU1-SB-RW3-18,
- CDE-OU1-SB-RW3-20,
- CDE-OU1-SB-RW3-22,
- CDE-OU1-SB-RW3-24,
- CDE-OU1-SB-RW3-26,
- CDE-OU1-SB-RW3-28,
- CDE-OU1-SB-RW3-30,
- CDE-OU1-SB-RW3-32,
- CDE-OU1-SB-RW3-34,
- CDE-OU1-SB-RW3-36,
- CDE-OU1-SB-RW3-38, and
- CDE-OU1-SB-RW3-40.

One duplicate sample (CDE-OU1-SB-RW3-D1), which is a duplicate of soil sample CDE-OU1-SB-RW3-23, was collected from ROW Area 3.

Soil sampling locations are shown on Figures RW3-1A through RW3-1C, and a summary of soil sampling data (including Aroclor data) is presented in Table ROW-3.

Analytical results indicate that Total PCBs were detected in all 35 soil samples with concentrations ranging from 0.047 ppm in sample CDE-OU1-SB-RW3-42 to 13.8 ppm in sample CDE-OU1-SB-RW3-35. The result for the following 1 out of 35 soil samples obtained in this ROW area exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-RW3-35 (13.800 ppm).

4.1.4. ROW Area 4 – Fulton Avenue

A total of 8 soil samples, including duplicates, were collected from ROW Area 4 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 8 soil samples from this ROW area are below the ROD criterion for Total PCBs of 1.0 ppm.

Soil sampling was performed at ROW Area 4 on May 27, 2011 by Louis Berger personnel. A total of 7 shallow borings were advanced at previously selected locations



using a hand auger, and were identified as CDE-OU1-SB-RW4-01 through CDE-OU1-SB-RW4-07. One soil sample was obtained from the 0 to 6 inch depth interval at each boring location. One duplicate sample (CDE-OU1-SB-RW4-D2), which is a duplicate of soil sample CDE-OU1-SB-RW4-06, was collected from ROW Area 4.

Soil sampling locations are shown on Figure RW4-1A, and a summary of soil sampling data (including Aroclors data) is presented in Table ROW-4.

Analytical results indicate that Total PCBs were detected in all 8 soil samples with concentrations ranging from 0.053 ppm in sample CDE-OU1-SB-RW4-07 to 0.880 ppm in sample CDE-OU1-SB-RW4-03. All 8 soil sample results for this ROW area are below the ROD criterion for Total PCBs of 1.0 ppm.

4.1.5. ROW Area 5 – Belmont Avenue

A total of 24 soil samples were collected from ROW Area 5 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 24 soil samples from this ROW area are below the ROD criterion for Total PCBs of 1.0 ppm.

Soil sampling was performed at ROW Area 5 on May 31 and June 1, 2011 by Louis Berger personnel. A total of 24 shallow borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-RW5-01 through CDE-OU1-SB-RW5-24. One soil sample was obtained from the 0 to 6 inch depth interval at each boring location. No duplicate samples were collected in ROW Area 5.

Soil sampling locations are shown on Figures RW5-1A through RW5-1C, and a summary of soil sampling data (including Aroclors data) is presented in Table ROW-5.

Analytical results indicate that Total PCBs were detected in all 24 soil samples with concentrations ranging from 0.017 ppm in sample CDE-OU1-SB-RW5-18 to 0.981 ppm in sample CDE-OU1-SB-RW5-09. All 24 soil sample results for this ROW area are below the ROD criterion for Total PCBs of 1.0 ppm.

4.1.6. ROW Area 6 – Kenneth Avenue

A total of 35 soil samples, including duplicates, were collected from ROW Area 6 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 3 out of 26 soil samples from this ROW area exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil sampling was performed at ROW Area 6 on May 27 and 31, 2011 and on August 12, 2011 by Louis Berger personnel. A total of 35 shallow borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-RW6-01 through CDE-OU1-SB-RW6-33. One soil sample was obtained from the 0 to 6



inch depth interval at each boring location. Two duplicate samples (CDE-OU1-SB-RW6-D3 and CDE-OU1-SB-RW6-D9), which are duplicates of soil samples CDE-OU1-SB-RW6-02 and CDE-OU1-SB-RW6-29, respectively, were collected in ROW Area 6.

Soil sampling locations are shown on Figures RW6-1A and RW6-1B, and a summary of soil sampling data (including Aroclors data) is presented in Table ROW-6.

Analytical results indicate that Total PCBs were detected in all 35 soil samples with concentrations ranging from 0.092 ppm in sample CDE-OU1-SB-RW6-15 to 3.840 ppm in sample CDE-OU1-SB-RW6-09. Soil sample results for the following 6 out of 35 samples for this ROW area exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-RW6-08 (1.410 ppm),
- CDE-OU1-SB-RW6-09 (3.840 ppm),
- CDE-OU1-SB-RW6-10 (1.700 ppm),
- CDE-OU1-SB-RW6-26 (1.040 ppm),
- CDE-OU1-SB-RW6-30 (1.410 ppm), and
- CDE-OU1-SB-RW6-33 (1.390 ppm).

4.1.7. ROW Area 7 – Hancock Street

One soil sample was collected from ROW Area 7 using the procedures described in Section 3.0. The sample was analyzed for PCB Aroclors. The result for the soil sample from this ROW area is below the ROD criterion for Total PCBs of 1.0 ppm.

Soil sampling was performed at ROW Area 7 on June 2, 2011 by Louis Berger personnel. One shallow boring was advanced at a previously selected location using a hand auger, and was identified as CDE-OU1-SB-RW7-01. The soil sample was obtained from the 0 to 6 inch depth interval. No duplicate samples were collected in ROW Area 7.

The soil sampling location is shown on Figure RW7-1A, and a summary of soil sampling data (including Aroclor data) is presented in Table ROW-7.

Analytical results indicate that the Total PCB concentration in soil sample CDE-OU1-SB-RW7-01 was 0.040 ppm. The soil sample result for this ROW area is below the ROD criterion for Total PCBs of 1.0 ppm.

4.1.8. ROW Area 8 – Jackson Avenue

A total of 3 soil samples, including duplicates, were collected from ROW Area 8 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors.



Results for all 3 soil samples from this ROW area are below the ROD criterion for Total PCBs of 1.0 ppm.

Soil sampling was performed at ROW Area 8 on June 2, 2011 by Louis Berger personnel. A total of 2 shallow borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-RW8-01 through CDE-OU1-SB-RW8-02. One soil sample was obtained from the 0 to 6 inch depth interval at each boring location. One duplicate sample (CDE-OU1-SB-RW8-D8), which is a duplicate of soil sample CDE-OU1-SB-RW8-02, was collected in ROW Area 8.

Soil sampling locations are shown on Figure RW8-1A, and a summary of soil sampling data (including Aroclors data) is presented in Table ROW-8.

Analytical results indicate that Total PCBs were detected in all 3 soil samples with concentrations ranging from 0.027 ppm in sample CDE-OU1-SB-RW8-01 to 0.255 ppm in sample CDE-OU1-SB-RW8-02. All 3 soil sample results for this ROW area are below the ROD criterion for Total PCBs of 1.0 ppm.

4.2. Confirmatory Properties (100 Series)

Confirmatory properties are those where USEPA conducted a remedial action to clean the interiors of homes where PCBs were found in interior dust at concentrations that posed a potential health concern for residents. A total of six homes were remediated. USEPA requested that interior dust samples be collected at these six homes to confirm that interior dust concentrations no longer posed a health concern for residents.

4.2.1. Property 110

Interior dust sampling was performed at Property 110 on July 20, 2011 by Malcolm Pirnie personnel. One interior dust sample (CDE-OU1-ID-110-01A) was collected at Property 110 using the procedures described in Section 3.0. This sample was analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were not detected in the interior dust sample for this property.

4.2.2. Property 111

Interior dust samples were not collected from Property 111 because the property owners chose not to grant access.

4.2.3. Property 112

Interior dust sampling was performed at Property 112 on July 20, 2011 by Malcolm Pirnie personnel. One interior dust sample (CDE-OU1-ID-112-01A) was collected at Property 112 using the procedures described in Section 3.0. This sample was analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in the interior



dust sample for this property. The result for this interior dust sample is 32 ppm, above the ROD criterion or Total PCBs of 1.0 ppm.

The field team noted that this home was very clean. Therefore, sample material for this property was obtained from a number of different locations, including the first floor carpeting, molding, dining room china cabinet, bookshelves, filters from 2 window AC units in the living room and dining room, the basement staircase, and the basement floor tiles. A total of 8 grams of sample, 2 grams less than the 10g requested by the lab, was collected.

The data was produced and validated by CLP following EPA Region II validation procedures. These procedures compare the data to the CLP criteria for evaluation of accuracy and precision. Since the CLP does not receive the field notes, they are not able to fully evaluate the representativeness of the sample. Per the ROD, dust samples are designed to identify homeowner exposure to PCB-laden dust. The field sampling team had to take extraordinary measures to collect enough dust (such as from AC filters) in order to meet CLP volume requirements, measures that may be considered above and beyond those specified in the sampling plan. Even through these efforts, the dust sample was still not sufficient to provide the laboratory with the required mass; this sample therefore may not be considered representative of typical homeowner exposure. Note that the lack of dust in the frequented spaces (*e.g.*, living room, dining room, bedrooms, etc.) of this property is the best indicator of the absence of an exposure. Confirmatory sampling should be pursued at this property, with dust collected from frequented areas of the house only. In light of the first sampling effort, the lack of sufficient sample mass should be considered representative of the actual homeowner exposure. That is, if a sample cannot be collected, there is not an exposure to PCB-laden dust.

4.2.4. Property 116

Interior dust samples were not collected from Property 116 because property owners chose not to grant access.

4.2.5. Property 121

Interior dust samples were not collected from Property 121 because property owners chose not to grant access.

4.2.6. Property 123

Interior dust samples were not collected from Property 123 because property owners chose not to grant access.



4.3. Tier III Properties (200 Series)

4.3.1. Property 201

A total of 16 soil samples (10 shallow, 5 deep, and 1 shallow duplicate) were collected from Property 201 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. The result for 1 out of 16 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 201 on June 27, 2011 by Louis Berger personnel. A total of 10 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-201-01 through CDE-OU1-SB-201-10. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 5 locations:

- CDE-OU1-SB-201-01
- CDE-OU1-SB-201-02
- CDE-OU1-SB-201-03
- CDE-OU1-SB-201-04
- CDE-OU1-SB-201-05 (24-27 inches)

Soil sampling locations are shown on Figure 201, and a summary of soil sampling data is presented in Table 201-1. One duplicate sample (CDE-OU1-SB-201-D1), which is a duplicate of soil sample CDE-OU1-SB-201-01S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 11 shallow soil samples (including the duplicate) with concentrations ranging from 0.103 ppm in sample CDE-OU1-SB-201-09S to 1.819 ppm in sample CDE-OU1-SB-201-02S. Shallow soil sample results for the following 1 out of 11 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-201-02S (1.819 ppm).

Analytical results indicate that Total PCBs were detected in all 5 deep soil samples with concentrations ranging from 0.020 ppm in sample CDE-OU1-SB-201-01D to 0.360 ppm in sample CDE-OU1-SB-201-05D. All 5 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.



Interior Dust Sampling

Property 201 was not identified for interior dust sampling by the USEPA because no dwelling was present.

4.3.2. Property 202

Soil and interior dust sampling were not performed at Property 202. Field reconnaissance performed by USEPA and Louis Berger indicated the presence of disturbed material in the intended soil sampling area and that the dwelling had been sampled during the RI.

4.3.3. Property 203

A total of 20 soil samples (13 shallow, 6 deep, and 1 shallow duplicate) were collected at Property 203 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 20 soil samples for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Soil Sampling

Soil sampling was performed at Property 203 on June 27 and 28, 2011 by Louis Berger personnel. A total of 13 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-203-01 through CDE-OU1-SB-203-13. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 6 locations:

- CDE-OU1-SB-203-01
- CDE-OU1-SB-203-02
- CDE-OU1-SB-203-03
- CDE-OU1-SB-203-04
- CDE-OU1-SB-203-05
- CDE-OU1-SB-203-06

Soil sampling locations are shown on Figure 203, and a summary of soil sampling data is presented in Table 203-1. One duplicate sample (CDE-OU1-SB-203-D1), which was a duplicate of soil sample CDE-OU1-SB-203-03S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 14 shallow soil samples (including the duplicate) with concentrations ranging from 0.171 ppm in sample CDE-



OU1-SB-203-12S to 0.860 ppm in sample CDE-OU1-SB-203-11S. All 14 shallow soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Analytical results indicate that Total PCBs were detected in all 6 deep soil samples with concentrations ranging from 0.007 ppm in sample CDE-OU1-SB-203-04D to 0.464 ppm in sample CDE-OU1-SB-203-01D. All 6 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Property 203 was not identified for interior dust sampling by the USEPA because no dwelling was present on the property.

4.3.4. Property 204

A total of 38 soil samples (24 shallow, 12 deep, and 2 shallow duplicates) were collected at Property 204 using the procedures discussed in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 2 out of 38 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 204 on June 28, 2011 by Louis Berger personnel. A total of 24 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-204-01 through CDE-OU-1-SB-204-24. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 12 locations:

- CDE-OU1-SB-204-01 (24-26 inches)
- CDE-OU1-SB-204-02
- CDE-OU1-SB-204-03
- CDE-OU1-SB-204-04
- CDE-OU1-SB-204-05
- CDE-OU1-SB-204-06
- CDE-OU1-SB-204-07 (24-28 inches)
- CDE-OU1-SB-204-08
- CDE-OU1-SB-204-09



- CDE-OU1-SB-204-10
- CDE-OU1-SB-204-11
- CDE-OU1-SB-204-12

Soil sampling locations are shown on Figure 204, and a summary of soil sampling data is presented in Table 204-1. Two duplicate samples (CDE-OU1-SB-204-D1 and CDE-OU1-SB-204-D2), which were duplicates of soil sample CDE-OU1-SB-204-21S and CDE-OU1-SB-204-15S, respectively, were collected at this property.

Analytical results indicate that Total PCBs were detected in all 26 shallow soil samples (including the duplicates) with concentrations ranging from 0.061 ppm in sample CDE-OU1-SB-204-16S to 1.360 ppm in sample CDE-OU1-SB-204-01S. Soil sample results for the following 2 out of 26 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-204-01S (1.360 ppm), and
- CDE-OU1-SB-204-03S (1.300 ppm).

Analytical results indicate that Total PCBs were detected in all 12 deep soil samples with concentrations ranging from 0.008 ppm in sample CDE-OU1-SB-204-07D to 0.300 ppm in sample CDE-OU1-SB-204-01D. All 12 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Dust sampling was performed at Property 204 on July 28, 2011 by Malcolm Pirnie personnel. A total of 2 interior dust samples (CDE-OU1-ID-204-01A and CDE-OU1-ID-204-01B) were collected at Property 204 using the procedures described in Section 3.0. Both samples were analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in both interior dust samples for this property. The results for both interior dust samples are above the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-ID-204-01A (3.0 ppm), and
- CDE-OU1-ID-204-01B (7.3 ppm).

The field team noted that this dwelling was quite dusty. The material for the sample was obtained from the areas behind the living room couch and shelves, as well as from steam radiators and moldings. The field team also noted that the owner had a dog, and that significant amounts of fur were present in the living room. The presence of the fur interfered with the collection of dust at this property.



The data was produced and validated by CLP following EPA Region II validation procedures. These procedures compare the data to the CLP criteria for evaluation of accuracy and precision. Since the CLP does not receive the field notes, they are not able to fully evaluate the representativeness of the sample. Per the ROD, dust samples are designed to identify homeowner exposure to PCB-laden dust. The field sampling team had to take extraordinary measures to collect enough dust (such as from areas behind furniture, from moldings, and from steam radiators) in order to meet CLP volume requirements, measures that may be considered above and beyond those specified in the sampling plan. Even through these efforts, the dust sample was still not sufficient to provide the laboratory with the required mass; this sample therefore may not be considered representative of typical homeowner exposure. Note that the lack of dust in the frequented spaces (*e.g.*, living room, dining room, bedrooms, etc.) of this property is the best indicator of the absence of an exposure. Confirmatory sampling should be pursued at this property, with dust collected from frequented areas of the house only. In light of the first sampling effort, the lack of sufficient sample mass should be considered representative of the actual homeowner exposure. That is, if a sample cannot be collected, there is not an exposure to PCB-laden dust.

4.3.5. Property 205

A total of 21 soil samples (13 shallow, 7 deep, and 1 shallow duplicate) were collected from Property 205 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. The result for 1 out of 21 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 205 on June 13, 2011 by Louis Berger personnel. A total of 13 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-205-01 through CDE-OU-1-SB-205-13. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 7 locations:

- CDE-OU1-SB-205-01
- CDE-OU1-SB-205-02 (24-28 inches)
- CDE-OU1-SB-205-03
- CDE-OU1-SB-205-04
- CDE-OU1-SB-205-05



- CDE-OU1-SB-205-06
- CDE-OU1-SB-205-07

Soil sampling locations are shown on Figure 205, and a summary of soil sampling data is presented in Table 205-1. One duplicate sample (CDE-OU1-SB-205-D1), which is a duplicate of soil sample CDE-OU1-SB-205-09S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 14 shallow soil samples (including the duplicate) with concentrations ranging from 0.355 ppm in sample CDE-OU1-SB-205-12S to 1.060 ppm in sample CDE-OU1-SB-205-13S. Shallow soil sample results for the following 1 out of 14 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-205-13S (1.060 ppm).

Analytical results indicate that Total PCBs were detected in all 7 deep soil samples with concentrations ranging from 0.004 ppm in sample CDE-OU1-SB-205-07D to 0.596 ppm in sample CDE-OU1-SB-205-04D. All 7 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Interior dust sampling was not performed because the property owner chose not to grant access.

4.3.6. Property 206

A total of 15 soil samples (10 shallow, 5 deep, and zero duplicates) were collected from Property 206 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 15 soil samples for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Soil Sampling

Soil sampling was performed at Property 206 on June 14, 2011 by Louis Berger personnel. A total of 10 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-206-01 through CDE-OU-1-SB-206-10. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 5 locations:

- CDE-OU1-SB-206-01
- CDE-OU1-SB-206-02



- CDE-OU1-SB-206-03
- CDE-OU1-SB-206-04
- CDE-OU1-SB-206-05

Soil sampling locations are shown on Figure 206, and a summary of soil sampling data is presented in Table 206-1. No duplicate samples were collected at this property.

Analytical results indicate that Total PCBs were detected in all 10 shallow soil samples with concentrations ranging from 0.137 ppm in sample CDE-OU1-SB-206-06S to 0.430 ppm in sample CDE-OU1-SB-206-07S. All 10 shallow soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Analytical results indicate that Total PCBs were detected in all 5 deep soil samples with concentrations ranging from 0.003 ppm in sample CDE-OU1-SB-206-02D to 0.096 ppm in sample CDE-OU1-SB-206-03D. All 5 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Dust sampling was performed at Property 206 on July 16, 2011 by Malcolm Pirnie personnel. One interior dust sample (CDE-OU1-ID-206-01A) was collected at Property 206 using the procedures described in Section 3.0. The sample was analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were not detected in the interior dust sample for this property.

4.3.7. Property 207

Soil and interior dust sampling were not performed at Property 207 because the owner did not grant access.

4.3.8. Property 208

Soil and interior dust sampling were not performed at Property 208 because the owner chose not to grant access.

4.3.9. Property 209

A total of 13 soil samples (8 shallow, 4 deep, and 1 shallow duplicate) were collected from Property 209 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 13 soil samples for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Soil Sampling

Soil sampling was performed at Property 209 on June 22, 2011 by Louis Berger personnel. A total of 8 borings were advanced at previously selected locations using a



hand auger, and were identified as CDE-OU1-SB-209-01 through CDE-OU-1-SB-209-08. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 4 locations:

- CDE-OU1-SB-209-01
- CDE-OU1-SB-209-02
- CDE-OU1-SB-209-03 (22-26 inches)
- CDE-OU1-SB-209-04

Soil sampling locations are shown on Figure 209, and a summary of soil sampling data is presented in Table 209-1. One duplicate sample (CDE-OU1-SB-209-D1), which is a duplicate of soil sample CDE-OU1-SB-209-05S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 9 shallow soil samples (including the duplicate) with concentrations ranging from 0.163 ppm in sample CDE-OU1-SB-209-04S to 0.680 ppm in sample CDE-OU1-SB-209-01S. All 9 shallow soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Analytical results indicate that Total PCBs were detected in all 4 deep soil samples with concentrations ranging from 0.014 ppm in sample CDE-OU1-SB-209-02D to 0.078 ppm in sample CDE-OU1-SB-209-01D. All 4 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Property 209 was identified for interior dust sampling by the USEPA, but reconnaissance of this property performed by Louis Berger and the USEPA indicated that dust sampling was not necessary because no dwelling was present on the property.

4.3.10. Property 210

A total of 25 soil samples (16 shallow, 9 deep, and zero duplicates) were collected from Property 210 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 25 soil samples for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Soil Sampling

Soil sampling was performed at Property 210 on June 22, 2011 by Louis Berger personnel. A total of 16 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-210-01 through CDE-OU-1-SB-210-



16. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 9 locations:

- CDE-OU1-SB-210-01 (20-22 inches)
- CDE-OU1-SB-210-02
- CDE-OU1-SB-210-03 (24-28 inches)
- CDE-OU1-SB-210-04
- CDE-OU1-SB-210-05
- CDE-OU1-SB-210-06
- CDE-OU1-SB-210-07
- CDE-OU1-SB-210-08
- CDE-OU1-SB-210-09

Soil sampling locations are shown on Figure 210, and a summary of soil sampling data is presented in Table 210-1. No duplicate samples were collected at this property.

Analytical results indicate that Total PCBs were detected in all 16 shallow soil samples with concentrations ranging from 0.122 ppm in sample CDE-OU1-SB-210-09S to 0.455 ppm in sample CDE-OU1-SB-210-07S. All 16 shallow soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Analytical results indicate that Total PCBs were detected in all 9 deep soil samples with concentrations ranging from 0.011 ppm in sample CDE-OU1-SB-210-08D to 0.093 ppm in sample CDE-OU1-SB-210-06D. All 9 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Dust sampling was performed at Property 210 on June 22, 2101 by Malcolm Pirnie personnel. A total of 2 interior dust samples (CDE-OU1-ID-210-01A and CDE-OU1-ID-210-01B) were collected at Property 210 using the procedures described in Section 3.0. Both samples were analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in the interior dust samples for this property. The results for both interior dust samples are below the ROD criterion for Total PCBs of 1.0 ppm.



4.3.11. Property 211

A total of 24 soil samples (17 shallow, 7 deep, and zero duplicates) were collected at Property 211 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. The results for 1 out of 24 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 211 on June 23, 2011 by Louis Berger personnel. A total of 17 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-211-01 through CDE-OU1-SB-211-17. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 7 locations:

- CDE-OU1-SB-211-01
- CDE-OU1-SB-211-02 (22-26 inches)
- CDE-OU1-SB-211-03
- CDE-OU1-SB-211-04 (24-26 inches)
- CDE-OU1-SB-211-05
- CDE-OU1-SB-211-06
- CDE-OU1-SB-211-07

Soil sampling locations are shown on Figure 211, and a summary of soil sampling data is presented in Table 211-1. No duplicate samples were collected at this property.

Analytical results indicate that Total PCBs were detected in all 17 shallow soil samples with concentrations ranging from 0.106 ppm in sample CDE-OU1-SB-211-14S to 1.490 ppm in sample CDE-OU1-SB-211-06S. The soil sample result for the following 1 out of 17 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-211-06S (1.490 ppm).

Analytical results indicate that Total PCBs were detected in all 7 deep soil samples with concentrations ranging from 0.001 ppm in sample CDE-OU1-SB-211-04D to 0.200 ppm



in sample CDE-OU1-SB-211-06D. All 7 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Dust sampling was performed at Property 211 on June 27, 2011 by Malcolm Pirnie personnel. A total of 2 interior dust samples (CDE-OU1-ID-211-01A and CDE-OU1-ID-211-01B) were collected at Property 211 using the procedures described in Section 3.0. Both samples were analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in the interior dust samples for this property. The results for both interior dust samples are below the ROD criterion for Total PCBs of 1.0 ppm.

4.3.12. Property 212

A total of 18 soil samples (12 shallow, 6 deep, and zero duplicates) were collected from Property 212 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 2 out of 18 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 212 on June 14 and 15, 2011 by Louis Berger personnel. A total of 12 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-212-01 through CDE-OU1-SB-212-12. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 6 locations:

- CDE-OU1-SB-212-01
- CDE-OU1-SB-212-02
- CDE-OU1-SB-212-03
- CDE-OU1-SB-212-04
- CDE-OU1-SB-212-05
- CDE-OU1-SB-212-06

Soil sampling locations are shown on Figure 212, and a summary of soil sampling data is presented in Table 212-1. No duplicate samples were collected at this property.

Analytical results indicate that Total PCBs were detected in 11 out of the 12 shallow soil samples with concentrations ranging from ND in sample CDE-OU1-SB-212-07S to 2.070



ppm in sample CDE-OU1-SB-212-06S. Shallow soil sample results for the following 2 out of 12 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-212-03S (1.400 ppm), and
- CDE-OU1-SB-212-06S (2.070 ppm).

Analytical results indicate that Total PCBs were detected in all 6 deep soil samples with concentrations ranging from 0.023 ppm in sample CDE-OU1-SB-212-01D to 0.210 ppm in sample CDE-OU1-SB-212-06D. All 6 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Dust sampling was performed at Property 212 on August 2, 2011 by Malcolm Pirnie personnel. One interior dust sample (CDE-OU1-ID-212-01A) was collected at Property 212 using the procedures described in Section 3.0. The sample was analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were not detected in the interior dust sample for this property.

4.3.13. Property 213

A total of 10 soil samples (6 shallow, 3 deep, and 1 shallow duplicate) were collected from Property 213 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 2 out of 10 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 213 on June 23, 2011 by Louis Berger personnel. A total of 6 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-213-01 through CDE-OU1-SB-213-06. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 3 locations:

- CDE-OU1-SB-213-01
- CDE-OU1-SB-213-02
- CDE-OU1-SB-213-03 (21-24 inches)



Soil sampling locations are shown on Figure 213, and a summary of soil sampling data is presented in Table 213-1. One duplicate sample (CDE-OU1-SB-213-D1), which is a duplicate of soil sample CDE-OU1-SB-213-04S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 7 shallow soil samples (including the duplicate) with concentrations ranging from 0.209 ppm in sample CDE-OU1-SB-213-03S to 1.390 ppm in sample CDE-OU1-SB-213-01S. Shallow soil sample results for the following 2 out of 7 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-213-01S (1.390 ppm), and
- CDE-OU1-SB-213-05S (1.030 ppm).

Analytical results indicate that Total PCBs were detected in all 3 deep soil samples with concentrations ranging from 0.014 ppm in sample CDE-OU1-SB-213-03D to 0.092 ppm in sample CDE-OU1-SB-213-01D. All 3 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Property 213 was not identified for interior dust sampling by the USEPA because no dwelling was present on the property.

4.3.14. Property 214

A total of 22 soil samples (14 shallow, 7 deep, and 1 deep duplicate) were collected from Property 214 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 1 out of 22 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 214 on July 7, 2011 by Louis Berger personnel. A total of 14 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-214-01 through CDE-OU-1-SB-214-14. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 7 locations:

- CDE-OU1-SB-214-01
- CDE-OU1-SB-214-02
- CDE-OU1-SB-214-03



- CDE-OU1-SB-214-04
- CDE-OU1-SB-214-05
- CDE-OU1-SB-214-06
- CDE-OU1-SB-214-07

Soil sampling locations are shown on Figure 214, and a summary of soil sampling data is presented in Table 214-1. One duplicate sample (CDE-OU1-SB-214-D1), which is a duplicate of soil sample CDE-OU1-SB-209-01D, was collected at this property. The sample from CDE-OU1-SB-214-11S was collected but not analyzed because the sample jar was found to be broken upon arrival at the laboratory.

Analytical results indicate that Total PCBs were detected in all 13 shallow soil samples with concentrations ranging from 0.107 ppm in sample CDE-OU1-SB-214-06S to 1.120 ppm in sample CDE-OU1-SB-214-12S. Shallow soil sample results for the following 1 out of 13 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-214-12S (1.120 ppm).

Analytical results indicate that Total PCBs were detected in 7 out of 8 deep soil samples with concentrations ranging from ND in sample CDE-OU1-SB-214-05D to 0.140 ppm in sample CDE-OU1-SB-214-02D. All 8 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Property 214 was initially identified for interior dust sampling by the USEPA; however, interior dust sampling was not performed because the property owner chose not to grant access.

4.3.15. Property 215

Soil and interior dust sampling were not performed at Property 215 because the owner did not grant access.

4.3.16. Property 216

A total of 16 soil samples (10 shallow, 5 deep, and 1 shallow duplicate) were collected from Property 216 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 4 out of 16 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.



Soil Sampling

Soil sampling was performed at Property 216 on June 16, 2011 by Louis Berger personnel. A total of 10 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-216-01 through CDE-OU1-SB-216-10. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 5 locations:

- CDE-OU1-SB-216-01
- CDE-OU1-SB-216-02
- CDE-OU1-SB-216-03
- CDE-OU1-SB-216-04
- CDE-OU1-SB-216-05

Soil sampling locations are shown on Figure 216, and a summary of soil sampling data is presented in Table 216-1. One duplicate sample (CDE-OU1-SB-216-D1), which is a duplicate of soil sample CDE-OU1-SB-216-06S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 11 shallow soil samples (including the duplicate) with concentrations ranging from 0.061 ppm in sample CDE-OU1-SB-216-01S to 2.360 ppm in sample CDE-OU1-SB-216-07S. Soil sample results for the following 4 out of 11 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-216-02S (1.030 ppm),
- CDE-OU1-SB-216-06S (1.360 ppm),
- CDE-OU1-SB-216-07S (2.360 ppm), and
- CDE-OU1-SB-216-D1 (1.350 ppm).

Analytical results indicate that Total PCBs were detected in all 5 deep soil samples with concentrations ranging from 0.010 ppm in sample CDE-OU1-SB-216-01D to 0.296 ppm in sample CDE-OU1-SB-216-04D. All 5 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.



Interior Dust Sampling

Dust sampling was performed at Property 216 on July 14, 2011 by Malcolm Pirnie personnel. One interior dust sample (CDE-OU1-ID-216-01A) was collected at Property 216 using the procedures described in Section 3.0. The sample was analyzed for PCB Aroclors. Analytical results indicate that all Aroclors were rejected in this sample due to poor surrogate recoveries (see Section 3.6), and therefore no Total PCB concentration could be calculated.

4.3.17. Property 217

A total of 15 soil samples (10 shallow, 5 deep, and zero duplicates) were collected from Property 217 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 15 soil samples for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Soil Sampling

Soil sampling was performed at Property 217 on June 15 and 16, 2011 by Louis Berger personnel. A total of 10 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-217-01 through CDE-OU-1-SB-217-10. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 5 locations:

- CDE-OU1-SB-217-01
- CDE-OU1-SB-217-02
- CDE-OU1-SB-217-03
- CDE-OU1-SB-217-04
- CDE-OU1-SB-217-05

Soil sampling locations are shown on Figure 217, and a summary of soil sampling data is presented in Table 217-1. No duplicate samples were collected at this property.

Analytical results indicate that Total PCBs were detected in all 10 shallow soil samples with concentrations ranging from 0.153 ppm in sample CDE-OU1-SB-217-08S to 0.960 ppm in sample CDE-OU1-SB-217-01S. All 10 shallow soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Analytical results indicate that Total PCBs were detected in all 5 deep soil samples with concentrations ranging from 0.007 ppm in sample CDE-OU1-SB-217-03D to 0.110 ppm



in sample CDE-OU1-SB-217-01D. All 5 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Property 217 was initially identified for interior dust sampling by the USEPA; however, interior dust sampling was not performed because the property owner chose not to grant access.

4.3.18. Property 218

A total of 17 soil samples (11 shallow, 5 deep, and 1 deep duplicate) were collected from Property 218 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 3 out of 17 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 218 on June 15, 2011 by Louis Berger personnel. A total of 11 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-218-01 through CDE-OU1-SB-218-11. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 5 locations:

- CDE-OU1-SB-218-01
- CDE-OU1-SB-218-02
- CDE-OU1-SB-218-03
- CDE-OU1-SB-218-04
- CDE-OU1-SB-218-05

Soil sampling locations are shown on Figure 218, and a summary of soil sampling data is presented in Table 218-1. One duplicate sample (CDE-OU1-SB-218-D1), which is a duplicate of soil sample CDE-OU1-SB-218-05D, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 11 shallow soil samples with concentrations ranging from 0.257 ppm in sample CDE-OU1-SB-218-02S to 1.120 ppm in sample CDE-OU1-SB-218-05S. Soil sample results for the following 2 out of 11 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:



- CDE-OU1-SB-218-05S (1.120 ppm), and
- CDE-OU1-SB-218-11S (1.110 ppm).

Analytical results indicate that Total PCBs were detected in all 6 deep soil samples (including the duplicate) with concentrations ranging from 0.021 ppm in sample CDE-OU1-SB-218-02D to 1.200 ppm in sample CDE-OU1-SB-218-03D. The soil sample result for the following 1 out of 6 deep soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-218-03D (1.200 ppm).

Interior Dust Sampling

Property 218 was initially identified for interior dust sampling by the USEPA; however, interior dust sampling was not performed because the property owner chose not to grant access.

4.3.19. Property 219

A total of 9 soil samples (6 shallow, 3 deep, and zero duplicates) were collected from Property 219 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 4 out of 9 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 219 on June 15, 2011 by Louis Berger personnel. A total of 6 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-219-01 through CDE-OU-1-SB-219-06. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 3 locations:

- CDE-OU1-SB-219-01
- CDE-OU1-SB-219-02
- CDE-OU1-SB-219-03

Soil sampling locations are shown on Figure 219, and a summary of soil sampling data is presented in Table 219-1. No duplicate samples were collected at this property.

Analytical results indicate that Total PCBs were detected in all 6 shallow soil samples with concentrations ranging from 0.235 ppm in sample CDE-OU1-SB-219-01S to 5.670



ppm in sample CDE-OU1-SB-219-03S. Soil sample results for the following 4 out of 6 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-219-02S (1.220 ppm),
- CDE-OU1-SB-219-03S (5.670 ppm),
- CDE-OU1-SB-219-04S (1.340 ppm), and
- CDE-OU1-SB-219-06S (1.600 ppm).

Analytical results indicate that Total PCBs were detected in all 3 deep soil samples with concentrations ranging from 0.019 ppm in sample CDE-OU1-SB-219-01D to 0.660 ppm in sample CDE-OU1-SB-219-03D. All 3 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Dust sampling was performed at Property 219 on July 6, 2011 by Malcolm Pirnie personnel. A total of 2 interior dust samples (CDE-OU1-ID-219-01A and CDE-OU1-ID-219-01B) were collected at Property 210 using the procedures described in Section 3.0. Both samples were analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were not detected in the interior dust samples for this property.

4.3.20. Property 220

A total of 11 soil samples (6 shallow, 4 deep, and 1 shallow duplicate) were collected from Property 220 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 3 out of 11 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 220 on June 16, 2011 by Louis Berger personnel. A total of 6 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-220-01 through CDE-OU-1-SB-220-06. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 4 locations:

- CDE-OU1-SB-220-01
- CDE-OU1-SB-220-02



- CDE-OU1-SB-220-03
- CDE-OU1-SB-220-04

Soil sampling locations are shown on Figure 220, and a summary of soil sampling data is presented in Table 220-1. One duplicate sample (CDE-OU1-SB-220-D1), which is a duplicate of soil sample CDE-OU1-SB-220-06S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 7 shallow soil samples (including the duplicate) with concentrations ranging from 0.434 ppm in sample CDE-OU1-SB-220-01S to 1.780 ppm in sample CDE-OU1-SB-220-04S. Soil sample results for the following 3 out of 7 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-220-03S (1.450 ppm),
- CDE-OU1-SB-220-04S (1.780 ppm), and
- CDE-OU1-SB-220-D1 (1.070 ppm).

Analytical results indicate that Total PCBs were detected in all 4 deep soil samples with concentrations ranging from 0.060 ppm in sample CDE-OU1-SB-220-01D to 0.722 ppm in sample CDE-OU1-SB-220-04D. All 4 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Dust sampling was performed at Property 220 on June 30, 2011 by Malcolm Pirnie personnel. A total of 2 interior dust samples (CDE-OU1-ID-220-01A and CDE-OU1-ID-220-01B) were collected at Property 220 using the procedures described in Section 3.0. Both samples were analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in both interior dust samples for this property. The results for both interior dust samples are above the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-ID-220-01A (3.3 ppm), and
- CDE-OU1-ID-220-01B (2.4 ppm).

The field team noted that this home was clean, vacant, and recently re-painted, and that the air return vent in the living room, the large crown moldings above windows and doors, and the bedroom closets all held a large quantity of dust; no air conditioning units were observed.

The material for Sample 01A was obtained from the living room floor, the side room/bedroom floor, ceiling fan in living room, moldings above windows and doors, and



the air vent return in living room floor. The material for Sample 01B was obtained from the kitchen floor, the bathroom floor, the bedroom floors, moldings, and closets, and also from the air duct in bedroom.

The data was produced and validated by CLP following EPA Region II validation procedures. These procedures compare the data to the CLP criteria for evaluation of accuracy and precision. Since the CLP does not receive the field notes, they are not able to fully evaluate the representativeness of the sample. Per the ROD, dust samples are designed to identify homeowner exposure to PCB-laden dust. The field sampling team had to take extraordinary measures to collect enough dust (such as from air vents and ducts and from moldings above windows and doors) in order to meet CLP volume requirements, measures that may be considered above and beyond those specified in the sampling plan. Even through these efforts, the dust sample was still not sufficient to provide the laboratory with the required mass; this sample therefore may not be considered representative of typical homeowner exposure. Note that the lack of dust in the frequented spaces (*e.g.*, living room, dining room, bedrooms, etc.) of this property is the best indicator of the absence of an exposure. Confirmatory sampling should be pursued at this property, with dust collected from frequented areas of the house only. In light of the first sampling effort, the lack of sufficient sample mass should be considered representative of the actual homeowner exposure. That is, if a sample cannot be collected, there is not an exposure to PCB-laden dust.

4.3.21. Property 221

Soil and interior dust sampling were not performed at Property 221 because the owner chose not to grant access.

4.3.22. Property 222

Soil and interior dust sampling were not performed at Property 222 because the owner chose not to grant access.

4.3.23. Property 223

A total of 48 soil samples (31 shallow, 15 deep, and 2 shallow duplicate) were collected at Property 223 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 5 out of 48 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 223 on June 17, 2011 by Louis Berger personnel. A total of 31 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-223-01 through CDE-OU-1-SB-223-31. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil



sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 15 locations:

- CDE-OU1-SB-223-01
- CDE-OU1-SB-223-02
- CDE-OU1-SB-223-03
- CDE-OU1-SB-223-04
- CDE-OU1-SB-223-05
- CDE-OU1-SB-223-06
- CDE-OU1-SB-223-07
- CDE-OU1-SB-223-08
- CDE-OU1-SB-223-09
- CDE-OU1-SB-223-10
- CDE-OU1-SB-223-11
- CDE-OU1-SB-223-12
- CDE-OU1-SB-223-13
- CDE-OU1-SB-223-14
- CDE-OU1-SB-223-15

Soil sampling locations are shown on Figure 223, and a summary of soil sampling data is presented in Table 223-1. Two duplicate samples (CDE-OU1-SB-223-D1 and CDE-OU1-SB-223-D2), which are duplicates of soil sample CDE-OU1-SB-223-16S and CDE-OU1-SB-223-11S, respectively, were collected at this property.

Analytical results indicate that Total PCBs were detected in all 33 shallow soil samples (including the duplicates) with concentrations ranging from 0.169 ppm in sample CDE-OU1-SB-223-30S to 3.810 ppm in sample CDE-OU1-SB-223-13S. Soil sample results for the following 5 out of 33 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-223-05S (2.040 ppm),



- CDE-OU1-SB-223-13S (3.810 ppm),
- CDE-OU1-SB-223-19S (1.160 ppm),
- CDE-OU1-SB-223-22S (1.120 ppm), and
- CDE-OU1-SB-223-31S (1.680 ppm).

Analytical results indicate that Total PCBs were detected in all 15 deep soil samples with concentrations ranging from 0.019 ppm in sample CDE-OU1-SB-223-07D to 0.390 ppm in sample CDE-OU1-SB-223-13D. All 15 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Dust sampling was performed at Property 223 on June 24, 2011 by Malcolm Pirnie personnel. A total of 3 interior dust samples (CDE-OU1-ID-223-01A, CDE-OU1-ID-223-02A and CDE-OU1-ID-223-02B) were collected at Property 223 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in 2 of the 3 interior dust samples for this property. The results for those 2 of the 3 interior dust samples are above the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-ID-223-02A (1.2 ppm), and
- CDE-OU1-ID-223-02B (1.3 ppm).

Samples 02A and 02B were collected from the upstairs apartment. The field team noted that the unit was very dusty throughout, particularly a kitchen display case, and that no air conditioning units were present.

The material for Sample 02A was obtained from the entry hallway floor, the kitchen floor, behind the microwave oven, shelves below microwave, kitchen window mini blinds, kitchen ceiling fan, and the kitchen radiator.

The material for Sample 02B was collected from kitchen shelving, a kitchen display case, the living room shelves/entertainment center, the living room floor, behind the TV, and from the sewing room floor and shelving.

The data was produced and validated by CLP following EPA Region II validation procedures. These procedures compare the data to the CLP criteria for evaluation of accuracy and precision. Since the CLP does not receive the field notes, they are not able to fully evaluate the representativeness of the sample. Per the ROD, dust samples are designed to identify homeowner exposure to PCB-laden dust. The field sampling team



had to take extraordinary measures to collect enough dust (such as from behind the microwave oven or a kitchen display case) in order to meet CLP volume requirements, measures that may be considered above and beyond those specified in the sampling plan. Even through these efforts, the dust sample was still not sufficient to provide the laboratory with the required mass; this sample therefore may not be considered representative of typical homeowner exposure. Note that the lack of dust in the frequented spaces (*e.g.*, living room, dining room, bedrooms, etc.) of this property is the best indicator of the absence of an exposure. Confirmatory sampling should be pursued at this property, with dust collected from frequented areas of the house only. In light of the first sampling effort, the lack of sufficient sample mass should be considered representative of the actual homeowner exposure. That is, if a sample cannot be collected, there is not an exposure to PCB-laden dust.

4.3.24. Property 224

Soil and interior dust sampling were not performed at Property 224 because the owner did not grant access.

4.3.25. Property 225

Soil and interior dust sampling were not performed at Property 225 because the owner chose not to grant access.

4.3.26. Property 226

A total of 15 soil samples (8 shallow, 5 deep, and 2 shallow duplicates) were collected from Property 226 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 11 out of 15 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 226 on June 20, 2011 by Louis Berger personnel. A total of 8 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-226-01 through CDE-OU-1-SB-226-08. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 5 locations:

- CDE-OU1-SB-226-01
- CDE-OU1-SB-226-02
- CDE-OU1-SB-226-03



- CDE-OU1-SB-226-04
- CDE-OU1-SB-226-05

Soil sampling locations are shown on Figure 226, and a summary of soil sampling data is presented in Table 226-1. Two duplicate samples (CDE-OU1-SB-226-D1 and CDE-OU1-SB-226-D2), which are duplicates of soil sample CDE-OU1-SB-226-07S and CDE-OU1-SB-226-08S, respectively, were collected at this property.

Analytical results indicate that Total PCBs were detected in all 10 shallow soil samples (including the duplicates) with concentrations ranging from 0.570 ppm in sample CDE-OU1-SB-226-06S to 25.900 ppm in sample CDE-OU1-SB-226-08S. Soil sample results for the following 9 out of 10 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-226-01S (1.170 ppm),
- CDE-OU1-SB-226-02S (14.000 ppm),
- CDE-OU1-SB-226-03S (3.950 ppm),
- CDE-OU1-SB-226-04S (1.060 ppm),
- CDE-OU1-SB-226-05S (17.400 ppm),
- CDE-OU1-SB-226-07S (6.610 ppm)
- CDE-OU1-SB-226-08S (25.900 ppm),
- CDE-OU1-SB-226-D1 (7.020 ppm), and
- CDE-OU1-SB-226-D2 (22.700 ppm).

Analytical results indicate that Total PCBs were detected in all 5 deep soil samples with concentrations ranging from 0.174 ppm in sample CDE-OU1-SB-226-04D to 15.200 ppm in sample CDE-OU1-SB-226-05D. Soil sample results for the following 2 out of 5 deep soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-226-02D (2.490 ppm), and
- CDE-OU1-SB-226-05D (15.200 ppm).



Interior Dust Sampling

Property 226 was not identified for interior dust sampling by the USEPA because no dwelling was present on the property.

4.3.27. Property 227

A total of 23 soil samples (14 shallow, 6 deep, and 3 shallow duplicates) were collected from Property 227 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 23 soil samples for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Soil Sampling

Soil sampling was performed at Property 227 on June 20, 2011 by Louis Berger personnel. A total of 14 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-227-01 through CDE-OU1-SB-227-14. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 6 locations:

- CDE-OU1-SB-227-01
- CDE-OU1-SB-227-02
- CDE-OU1-SB-227-04
- CDE-OU1-SB-227-05
- CDE-OU1-SB-227-06
- CDE-OU1-SB-227-10

A deep sample was initially proposed for collection at CDE-OU1-SB-227-03 but was unable to be collected due to the presence of concrete at depth in the borehole. Soil sampling locations are shown on Figure 227, and a summary of soil sampling data is presented in Table 227-1. Three duplicate samples (CDE-OU1-SB-227-D1, CDE-OU1-SB-227-D2, and CDE-OU1-SB-227-D3), which are duplicates of soil sample CDE-OU1-SB-227-10S, CDE-OU1-SB-227-11S and CDE-OU1-SB-227-13S, respectively, were collected at this property.

Analytical results indicate that Total PCBs were detected in 16 out of 17 shallow soil samples (including the duplicates) with concentrations ranging from 0.027 ppm in sample CDE-OU1-SB-227-8S to 0.149 ppm in sample CDE-OU1-SB-227-04S.



Soil sample results for 16 out of 17 shallow soil samples for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

The Total PCB result for sample CDE-OU1-SB-227-12S is a minimum potential concentration, and is considered to be NA (not applicable/not usable data) because the data for Aroclor-1254 in this sample was rejected due to percent differences greater than 100 percent between analytical results (see Section 3.6).

Analytical results indicate that Total PCBs were detected in 2 out of 6 deep soil samples with concentrations ranging from ND in samples CDE-OU1-SB-227-01D, CDE-OU1-SB-227-02D, CDE-OU1-SB-227-04D, and CDE-OU1-SB-227-05D to 0.074 ppm in sample CDE-OU1-SB-227-10D. Soil sample results for all 6 deep soil samples are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Property 227 was not identified for interior dust sampling by the USEPA because no dwelling was present on the property.

4.3.28. Property 228

Soil and interior dust sampling were not performed at Property 228. Field reconnaissance performed by USEPA and Louis Berger indicated that no dwelling was present on the property, and that the parcel was composed of asphalt.

4.3.29. Property 229

A total of 16 soil samples (10 shallow, 5 deep, and 1 deep duplicate) were collected from Property 229 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. The result for 1 out of 16 soil samples for this property exceeded the ROD criterion of 1.0 ppm for Total PCBs.

Soil Sampling

Soil sampling was performed at Property 229 on June 16, 2011 by Louis Berger personnel. A total of 10 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-229-01 through CDE-OU-1-SB-229-10. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval at each of the following 5 locations:

- CDE-OU1-SB-229-01
- CDE-OU1-SB-229-02
- CDE-OU1-SB-229-03



- CDE-OU1-SB-229-04
- CDE-OU1-SB-229-05

Soil sampling locations are shown on Figure 229, and a summary of soil sampling data is presented in Table 229-1. One duplicate sample (CDE-OU1-SB-229-D1), which is a duplicate of soil sample CDE-OU1-SB-229-05D, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 10 shallow soil samples with concentrations ranging from 0.047 ppm in sample CDE-OU1-SB-229-09S to 0.939 ppm in sample CDE-OU1-SB-229-01S. Soil sample results for all 10 shallow soil samples for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Analytical results indicate that Total PCBs were detected in all 6 deep soil samples (including the duplicate) with concentrations ranging from 0.020 ppm in sample CDE-OU1-SB-229-04D to 1.051 ppm in sample CDE-OU1-SB-229-03D. The soil sample result for the following 1 out of 5 deep soil samples exceeded the ROD criterion of 1.0 ppm for Total PCBs:

- CDE-OU1-SB-229-03D (1.051 ppm).

Interior Dust Sampling

Property 229 was not identified for interior dust sampling by the USEPA because no dwelling was present on the property.

4.4. Tier II Property Sampling (300 Series)

4.4.1. Property 301

A total of 12 soil samples (7 shallow, 4 deep, and 1 shallow duplicate) were collected at Property 301 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 2 out of 12 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 301 on June 29, 2011 by Louis Berger personnel. A total of 7 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-301-01 through CDE-OU1-SB-301-07. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 4 locations:

- CDE-OU1-SB-301-01



- CDE-OU1-SB-301-02 (18-24 inches)
- CDE-OU1-SB-301-03
- CDE-OU1-SB-301-04

Soil sampling locations are shown on Figure 301, and a summary of soil sampling data is presented in Table 301-1. One duplicate sample (CDE-OU1-SB-301-D1), which was a duplicate of soil sample CDE-OU1-SB-301-02S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 8 shallow soil samples (including the duplicate) with concentrations ranging from 0.045 ppm in sample CDE-OU1-SB-301-04S to 1.220 ppm in sample CDE-OU1-SB-301-01S. Soil sample results for the following 2 out of 8 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-301-01S (1.220 ppm), and,
- CDE-OU1-SB-301-05S (1.010 ppm).

Analytical results indicate that Total PCBs were detected in all 4 deep soil samples with concentrations ranging from 0.026 ppm in sample CDE-OU1-SB-301-03D to 0.107 ppm in sample CDE-OU1-SB-301-04D. All 4 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Property 301 was initially identified for interior dust sampling by the USEPA; however, interior dust sampling was not performed because the property owner chose not to grant access.

4.4.2. Property 302

A total of 13 soil samples (8 shallow, 4 deep, and 1 shallow duplicate) were collected at Property 302 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 8 out of 13 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 302 on June 29, 2011 by Louis Berger personnel. A total of 8 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-302-01 through CDE-OU-1-SB-302-08. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil



sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 4 locations:

- CDE-OU1-SB-302-01
- CDE-OU1-SB-302-02
- CDE-OU1-SB-302-03
- CDE-OU1-SB-302-04 (24-26 inches)

Soil sampling locations are shown on Figure 302, and a summary of soil sampling data is presented in Table 302-1. One duplicate sample (CDE-OU1-SB-302-D1), which was a duplicate of soil sample CDE-OU1-SB-302-06S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 9 shallow soil samples (including the duplicate) with concentrations ranging from 0.422 ppm in sample CDE-OU1-SB-302-05S to 10.590 ppm in sample CDE-OU1-SB-302-07S. Soil sample results for the following 8 out of 9 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-302-01S (1.710 ppm),
- CDE-OU1-SB-302-02S (1.660 ppm),
- CDE-OU1-SB-302-03S (1.120 ppm),
- CDE-OU1-SB-302-04S (1.430 ppm),
- CDE-OU1-SB-302-06S (1.960 ppm),
- CDE-OU1-SB-302-D1 (1.960 ppm),
- CDE-OU1-SB-302-07S (10.590 ppm), and
- CDE-OU1-SB-302-08S (3.060 ppm).

Analytical results indicate that Total PCBs were detected in all 4 deep soil samples with concentrations ranging from 0.053 ppm in sample CDE-OU1-SB-302-02D to 0.313 ppm in sample CDE-OU1-SB-302-04D. All 4 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.



Interior Dust Sampling

Interior dust sampling was performed at Property 302 on July 5, 2011 by Malcolm Pirnie personnel. A total of 2 interior dust samples (CDE-OU1-ID-302-01A and CDE-OU1-ID-302-01B) were collected at Property 302 using the procedures described in Section 3.0. Both samples were analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in both interior dust samples for this property. The results for both interior dust samples are below the ROD criterion for Total PCBs of 1.0 ppm.

4.4.3. Property 303

A total of 19 soil samples (9 shallow, 9 deep, and 1 deep duplicate) were collected at Property 303 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 1 out of 19 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 303 on June 30, 2011 by Louis Berger personnel. A total of 9 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-303-01 through CDE-OU-1-SB-303-09. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 9 locations:

- CDE-OU1-SB-303-01
- CDE-OU1-SB-303-02 (26-30 inches)
- CDE-OU1-SB-303-03 (24-27 inches)
- CDE-OU1-SB-303-04
- CDE-OU1-SB-303-05
- CDE-OU1-SB-303-06
- CDE-OU1-SB-303-07
- CDE-OU1-SB-303-08
- CDE-OU1-SB-303-09



Soil sampling locations are shown on Figure 303, and a summary of soil sampling data is presented in Table 303-1. One duplicate sample (CDE-OU1-SB-303-D1), which was a duplicate of soil sample CDE-OU1-SB-303-02D, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 9 shallow soil samples with concentrations ranging from 0.450 ppm in sample CDE-OU1-SB-303-02S to 4.490 ppm in sample CDE-OU1-SB-303-05S. Soil sample results for the following 1 out of 9 shallow soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-303-05S (4.490 ppm).

Analytical results indicate that Total PCBs were detected in all 10 deep soil samples (including the duplicate) with concentrations ranging from 0.019 ppm in sample CDE-OU1-SB-303-08D to 0.315 ppm in sample CDE-OU1-SB-303-05D. All 10 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Property 303 was identified for interior dust sampling by the USEPA, but field reconnaissance performed by the USEPA and Louis Berger found that room size constraints would not allow for the collection of adequate sample volume for analysis. Therefore, no dust samples were collected at this property.

4.4.4. Property 304

A total of 51 soil samples (35 shallow, 14 deep, and 2 shallow duplicate) were collected from Property 304 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for 2 out of 51 soil samples for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 304 on June 23, 24, and 27, 2011 by Louis Berger personnel. A total of 35 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-304-01 through CDE-OU1-SB-304-35. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 14 locations:

- CDE-OU1-SB-304-01
- CDE-OU1-SB-304-02
- CDE-OU1-SB-304-03



- CDE-OU1-SB-304-04
- CDE-OU1-SB-304-05
- CDE-OU1-SB-304-06
- CDE-OU1-SB-304-07 (18-22 inches)
- CDE-OU1-SB-304-08
- CDE-OU1-SB-304-10
- CDE-OU1-SB-304-11 (19-24 inches)
- CDE-OU1-SB-304-12
- CDE-OU1-SB-304-13
- CDE-OU1-SB-304-23
- CDE-OU1-SB-304-32

Soil sampling locations are shown on Figure 304, and a summary of soil sampling data is presented in Table 304-1. Two duplicate samples (CDE-OU1-SB-304-D1 and CDE-OU1-SB-304-D2), which are duplicates of soil sample CDE-OU1-SB-304-25S and CDE-OU1-SB-304-21S, respectively, were collected at this property.

Analytical results indicate that Total PCBs were detected in all 37 shallow soil samples (including the duplicates) with concentrations ranging from 0.024 ppm in sample CDE-OU1-SB-304-09S to 3.700 ppm in sample CDE-OU1-SB-304-30S. Soil sample results for the following 2 out of 37 shallow soil samples (samples CDE-OU1-SB-304-05S and CDE-OU1-SB-304-30S) for this property exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-SB-304-05S (3.170 ppm), and
- CDE-OU1-SB-304-30S (3.700 ppm).

Analytical results indicate that Total PCBs were detected in 12 out of 14 deep soil samples with concentrations ranging from ND in samples CDE-OU1-SB-304-08D and CDE-OU1-SB-304-10D to 0.644 ppm in sample CDE-OU1-SB-304-13D. Soil sample results for all 14 deep soil samples for this property are below the ROD criterion for Total PCBs of 1.0 ppm.



Interior Dust Sampling

Property 304 was not identified for interior dust sampling by the USEPA because no dwelling was present on the property.

4.4.5. Property 305

A total of 26 soil samples (17 shallow, 8 deep, and 1 shallow duplicate) were collected at Property 305 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 26 soil samples for this property are below the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 305 on July 5, 2011 by Louis Berger personnel. A total of 17 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-305-01 through CDE-OU-1-SB-305-17. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 8 locations:

- CDE-OU1-SB-305-01
- CDE-OU1-SB-305-02
- CDE-OU1-SB-305-03
- CDE-OU1-SB-305-04
- CDE-OU1-SB-305-05
- CDE-OU1-SB-305-06
- CDE-OU1-SB-305-07
- CDE-OU1-SB-305-08

Soil sampling locations are shown on Figure 305, and a summary of soil sampling data is presented in Table 305-1. One duplicate sample (CDE-OU1-SB-305-D1), which was a duplicate of soil sample CDE-OU1-SB-305-09S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 18 shallow soil samples (including the duplicate) with concentrations ranging from 0.015 ppm in sample CDE-OU1-SB-305-15S to 0.830 ppm in sample CDE-OU1-SB-305-06S. Soil sample results



for all 18 shallow soil samples for this property are below the ROD criterion for Total PCBs of 1.0 ppm.

Analytical results indicate that Total PCBs were detected in 6 out of 8 deep soil samples with concentrations ranging from ND in samples CDE-OU1-SB-305-01D and CDE-OU1-SB-305-03D to 0.301 ppm in sample CDE-OU1-SB-305-06D. All 8 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Interior dust sampling was performed at Property 305 on July 13, 2011 by Malcolm Pirnie personnel. One interior dust sample (CDE-OU1-ID-305-01A) was collected at Property 305 using the procedures described in Section 3.0. The sample was analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in the interior dust sample for this property. The result for the interior dust sample is below the ROD criterion for Total PCBs of 1.0 ppm.

4.4.6. Property 306

A total of 14 soil samples (9 shallow, 4 deep, and 1 shallow duplicate) were collected at Property 306 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 14 soil samples for this property are below the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 306 on June 30, 2011 by Louis Berger personnel. A total of 9 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-306-01 through CDE-OU1-SB-306-09. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 4 locations:

- CDE-OU1-SB-306-01
- CDE-OU1-SB-306-02
- CDE-OU1-SB-306-03
- CDE-OU1-SB-306-04

Soil sampling locations are shown on Figure 306, and a summary of soil sampling data is presented in Table 306-1. One duplicate sample (CDE-OU1-SB-306-D1), which was a duplicate of soil sample CDE-OU1-SB-306-05S, was collected at this property.



Analytical results indicate that Total PCBs were detected in all 10 shallow soil samples (including the duplicate) with concentrations ranging from 0.091 ppm in sample CDE-OU1-SB-306-1S to 0.890 ppm in sample CDE-OU1-SB-306-06S. Soil sample results for 8 out of 10 shallow soil samples for this property are below the ROD criterion for Total PCBs of 1.0 ppm. Total PCB results for samples CDE-OU1-SB-306-05S and CDE-OU1-SB-306-D1 are minimum potential concentrations, and are considered to be NA (not applicable/not usable data) because the data for Aroclor-1254 in these 2 samples was rejected.

Analytical results indicate that Total PCBs were detected in 3 out of 4 deep soil samples with concentrations ranging from ND in samples CDE-OU1-SB-306-01D to 0.421 ppm in sample CDE-OU1-SB-306-03D. All 4 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Interior dust sampling was performed at Property 306 on July 1, 2011 by Malcolm Pirnie personnel. A total of 2 interior dust samples (CDE-OU1-ID-306-01A and CDE-OU1-ID-306-01B) were collected at Property 306 using the procedures described in Section 3.0. Both samples were analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in both interior dust samples for this property. The results for the following 2 interior dust samples exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-ID-306-01A (21.400 ppm), and,
- CDE-OU1-ID-306-01B (11.100 ppm).

The material for sample 01A was collected from the first floor of the home. The field team noted that this floor was very clean. Specific areas vacuumed include the living room, dining room, kitchen and heat/AC vents. The vents were included in order to obtain sufficient sample quantity.

The material for Sample 01B was obtained from the basement of the dwelling. Specific areas vacuumed include the music room, air vents, and utility/furnace room. The vents and furnace room were included in order to obtain sufficient sample quantity.

The data was produced and validated by CLP following EPA Region II validation procedures. These procedures compare the data to the CLP criteria for evaluation of accuracy and precision. Since the CLP does not receive the field notes, they are not able to fully evaluate the representativeness of the sample. Per the ROD, dust samples are designed to identify homeowner exposure to PCB-laden dust. The field sampling team had to take extraordinary measures to collect enough dust (such as from heat/AC vents and the utility/furnace room) in order to meet CLP volume requirements, measures that may be considered above and beyond those specified in the sampling plan. Even through



these efforts, the dust sample was still not sufficient to provide the laboratory with the required mass; this sample therefore may not be considered representative of typical homeowner exposure. Note that the lack of dust in the frequented spaces (*e.g.*, living room, dining room, bedrooms, etc.) of this property is the best indicator of the absence of an exposure. Confirmatory sampling should be pursued at this property, with dust collected from frequented areas of the house only. In light of the first sampling effort, the lack of sufficient sample mass should be considered representative of the actual homeowner exposure. That is, if a sample cannot be collected, there is not an exposure to PCB-laden dust.

4.4.7. Property 307

A total of 17 soil samples (10 shallow, 6 deep, and 1 shallow duplicate) were collected at Property 307 using the procedures described in Section 3.0. All samples were analyzed for PCB Aroclors. Results for all 17 soil samples for this property are below the ROD criterion for Total PCBs of 1.0 ppm.

Soil Sampling

Soil sampling was performed at Property 307 on July 6, 2011 by Louis Berger personnel. A total of 10 borings were advanced at previously selected locations using a hand auger, and were identified as CDE-OU1-SB-307-01 through CDE-OU1-SB-307-10. One shallow soil sample (denoted by an “S” at the end of the sample ID) was obtained at each boring location from the 0 to 6 inch depth interval, and one deep soil sample (denoted by a “D” at the end of the sample ID) was collected from the 24 to 30 inch depth interval (with exceptions noted below) at each of the following 6 locations:

- CDE-OU1-SB-307-01
- CDE-OU1-SB-307-02
- CDE-OU1-SB-307-03
- CDE-OU1-SB-307-04
- CDE-OU1-SB-307-05
- CDE-OU1-SB-307-06

Soil sampling locations are shown on Figure 307, and a summary of soil sampling data is presented in Table 307-1. One duplicate sample (CDE-OU1-SB-307-D1), which was a duplicate of soil sample CDE-OU1-SB-307-09S, was collected at this property.

Analytical results indicate that Total PCBs were detected in all 11 shallow soil samples (including the duplicate) with concentrations ranging from 0.060 ppm in sample CDE-



OU1-SB-307-1S to 0.165 ppm in sample CDE-OU1-SB-307-07S. Soil sample results for all 11 shallow soil samples for this property are below the ROD criterion for Total PCBs of 1.0 ppm.

Analytical results indicate that Total PCBs were detected in all 6 deep soil samples with concentrations ranging from 0.009 in samples CDE-OU1-SB-307-06D to 0.173 ppm in sample CDE-OU1-SB-307-04D. All 6 deep soil sample results for this property are below the ROD criterion of 1.0 ppm for Total PCBs.

Interior Dust Sampling

Interior dust sampling was performed at Property 307 on July 11, 2011 by Malcolm Pirnie personnel. A total of 2 interior dust samples (CDE-OU1-ID-307-01A and CDE-OU1-ID-307-01B) were collected at Property 307 using the procedures described in Section 3.0. Both samples were analyzed for PCB Aroclors. Analytical results indicate that Total PCBs were detected in both interior dust samples for this property. The results for the following 2 interior dust samples exceeded the ROD criterion for Total PCBs of 1.0 ppm:

- CDE-OU1-ID-307-01A (103.000 ppm), and,
- CDE-OU1-ID-307-01B (5.200 ppm).

The field team noted that significant quantities of dust were present behind the bookshelf and religious shrine in the living room as well as along the baseboard heaters; the team also noted that the area behind the dressers in the finished attic bedroom were also very dusty.

Material for Sample 01A was obtained from the kitchen and the living room, and material for Sample 01B was obtained from the finished attic bedroom, stairway, mini blinds, and behind the dressers.

The data was produced and validated by CLP following EPA Region II validation procedures. These procedures compare the data to the CLP criteria for evaluation of accuracy and precision. Since the CLP does not receive the field notes, they are not able to fully evaluate the representativeness of the sample. Per the ROD, dust samples are designed to identify homeowner exposure to PCB-laden dust. The field sampling team had to take extraordinary measures to collect enough dust (such as from behind a religious shrine) in order to meet CLP volume requirements, measures that may be considered above and beyond those specified in the sampling plan. Even through these efforts, the dust sample was still not sufficient to provide the laboratory with the required mass; this sample therefore may not be considered representative of typical homeowner exposure. Note that the lack of dust in the frequented spaces (*e.g.*, living room, dining room, bedrooms, etc.) of this property is the best indicator of the absence of an exposure.



Confirmatory sampling should be pursued at this property, with dust collected from frequented areas of the house only. In light of the first sampling effort, the lack of sufficient sample mass should be considered representative of the actual homeowner exposure. That is, if a sample cannot be collected, there is not an exposure to PCB-laden dust.



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